
Detailed Work Plan for On-Plant Consolidation Areas

General Electric Company
Pittsfield, Massachusetts

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1. Introduction

1.1 General

This *Detailed Work Plan for On-Plant Consolidation Areas* (Detailed Work Plan) presents the plans proposed by the General Electric Company (GE) for the design, construction, operation, closure, and post-closure monitoring of at least two and possibly three future on-plant consolidation areas located within the GE Plant Area in Pittsfield, Massachusetts (Figure 1). Subject to certain limitations, these areas will be utilized for the permanent consolidation of materials (e.g., soil, sediment, debris, etc.) generated during the performance of response actions conducted within the GE Plant Area and several other areas within and around Pittsfield (henceforth referred to as the Pittsfield/Housatonic River Site, or the Site). The general nature and scope of these response actions, including the use of on-plant consolidation areas, were initially established in a September 1998 settlement agreement reached between GE and the United States Environmental Protection Agency (USEPA), the Massachusetts Department of Environmental Protection (MDEP), and several other governmental agencies (all collectively referred to as the Agencies). With respect to on-plant consolidation areas, GE has performed several activities since the September 1998 settlement agreement to evaluate and select, and perform preliminary design activities for, several potential areas; a discussion of the activities performed by GE prior to and leading up to the preparation of this Detailed Work Plan is provided in Section 1.2 of this document. These activities resulted in the selection of three on-plant consolidation areas, as identified below and generally shown on Figure 2:

- Hill 78 Consolidation Area;
- Building 71 Consolidation Area; and
- New York Avenue / Merrill Road Consolidation Area.

Additional information regarding the evaluation processes and other considerations involved in the selection of the above areas is summarized in Section 1.2 below.

For each consolidation area, this Detailed Work Plan presents general information concerning the anticipated design, construction, operation, active-use monitoring, closure, and post-closure monitoring for each area. While such information is important in defining the final conditions associated with each consolidation area, and establishing a basis for more detailed design activities, the primary objective of this Detailed Work Plan is to summarize the near-term design, construction, and operation activities necessary to support use of two of the

above-identified areas -- the Hill 78 and the Building 71 Consolidation Areas. These areas will be used for the permanent consolidation of materials generated during response actions conducted within certain portions of the Site (initial use of these two consolidation areas may occur as soon as early July 1999). As a result, the contents of this Detailed Work Plan have been developed so that USEPA review and approval, and subsequent construction of an appropriate portion of these consolidation areas, can be performed in as expedited a manner as possible.

1.2 Background Information

In September 1998, GE and the Agencies reached a settlement agreement regarding the performance of future response actions (and related activities) for several areas within the Pittsfield/Housatonic River Site. The settlement agreement established, among other things, the response actions that GE would perform to address polychlorinated biphenyls (PCBs) and other hazardous constituents present in soils, sediment, and groundwater. Since the time that the settlement agreement was reached, GE and the Agencies have continued to discuss and negotiate the terms of a Consent Decree (and accompanying Statement of Work) to embody the contents of the agreement. At present time, several remaining issues must be resolved before a final agreement can be reached between the parties. Subsequently, the final Consent Decree will be "lodged" in federal court, and will be subject to public comment and court review before it is entered by the court and legally binding on the parties involved. However, for certain areas within the Pittsfield/Housatonic River Site, GE has agreed with the Agencies that it will perform certain response actions after lodging but prior to entry of the Consent Decree. These response actions include sediment and bank soil removal for the upper ½-mile reach of the Housatonic River between the Newell Street and Lyman Street bridges (Upper ½-Mile Reach) and soil removal from the Allendale School Property. In addition to these activities, GE may also demolish some buildings within its facility as part of its separate Brownfields redevelopment agreement with the City of Pittsfield.

The activities identified above will result in the generation of materials (e.g., soils, sediments, demolition debris, etc.) that will require disposition. Under the settlement agreement between GE and the Agencies, such materials may be permanently placed (subject to several conditions) into one or more consolidation areas located within the GE Plant Area. Subsequent to the September 1998 settlement agreement, GE identified and evaluated several potential consolidation areas within the GE Plant Area, and identified three areas for further detailed development -- the Hill 78, Building 71, and New York Avenue / Merrill Road Consolidation Areas (Figure 2). These locations were selected based on several considerations, including the potential volume and type of materials subject to future on-plant consolidation; the size, location, and capacity of potential consolidation areas; the location of

potential areas relative to active plant operations, floodplain areas, or future re-development areas; and prior and current use of the areas under consideration. The information utilized to initially screen and evaluate several candidate consolidation locations, toward the selection of the three consolidation areas identified above, was presented in a document entitled *Conceptual Work Plan for Future On-Plant Consolidation Areas* (Conceptual Work Plan), which was submitted to USEPA in March 1999.

The evaluation and selection process described above and summarized in the Conceptual Work Plan also considered, to a certain extent, limitations (established under the settlement agreement) related to the types of materials that could be permanently consolidated within the GE Plant. For example, prohibited from any future on-plant consolidation are free liquids, free product, intact drums and capacitors, and any other equipment that contains PCBs within its internal components (such materials, if encountered, must be transported off-site to an appropriate facility for disposal). In addition, while soils, sediments, and other debris generated as a result of response actions are generally suitable for on-plant consolidation, certain limitations regarding the acceptable location(s) for on-plant consolidation were established. Specifically, materials to be placed at the Hill 78 Consolidation Area (which was formerly used by GE for the placement of excess soils generated during various plant excavations/upgrades) must be limited to materials that contain less than 50 ppm PCBs (as determined by an appropriate composite averaging technique approved by USEPA) (referred to herein as Toxic Substances Control Act, or TSCA, materials) and do not constitute hazardous waste under USEPA's regulations pursuant to the Resource Conservation and Recovery Act (RCRA). Such materials shall be consolidated within the other on-plant consolidation areas (e.g., the Building 71 Consolidation Area).

Based on preliminary estimates concerning the volume and type of material subject to future consolidation and the capacities of the Hill 78 and Building 71 Consolidation Areas, it appears possible that most, if not all, of the materials generated as part of the overall response actions within the Site may be consolidated within these two areas. However, as future Removal Design/Removal Action (RD/RA) activities are conducted for the various areas comprising the Site, removal volume estimates will be updated. In the event that the anticipated volume of materials subject to future consolidation exceeds the anticipated capacity of the Hill 78 and Building 71 Consolidation Areas, GE will develop the third consolidation area, located in the vicinity of New York Avenue and Merrill Road. Given the current uncertainties regarding the future needs related to on-plant consolidation, this area has been retained as a potential future on-plant consolidation area. However, for the reasons discussed above and in Section 1.1, only preliminary and conceptual information concerning this area is presented in this Detailed Work Plan. Additional discussion concerning the scope and schedule of future response actions within the Pittsfield/

Housatonic River Site, and the corresponding development, operation, and closure of on-plant consolidation areas, is presented in Section 1.4 below.

1.3 Anticipated 1999 Response Actions and On-Plant Consolidation Activities

As described in Section 1.2, GE has agreed with the Agencies that it will initiate certain response actions within the Pittsfield/Housatonic River Site following lodging but prior to the entry of the Consent Decree. As a result, concurrent with the design and development of the Hill 78 and Building 71 Consolidation Areas, GE has been active in the performance of RD/RA activities related to Removal Actions for the Allendale School Property and the Upper ½-Mile Reach of the Housatonic River. These activities have been conducted with the intent of initiating response actions (following USEPA review and approval of the appropriate work plans and lodging of the Consent Decree) beginning in the summer of 1999. To facilitate the near-term design and construction of the appropriate portions of the Hill 78 and Building 71 Consolidation Areas, it was necessary to identify, to the extent possible, the volume of soil subject to on-plant consolidation.

To accommodate the 1999 response actions anticipated for the Allendale School Property and the Upper ½-Mile Reach, the total volume of material (soils and sediments) subject to transport to and placement within the Hill 78 and Building 71 Consolidation Areas is conservatively estimated as 36,000 cubic yards. A breakdown of this volume estimate is presented below:

Area	Hill 78 Consolidation Area	Building 71 Consolidation Area
Allendale School Property	24,000 cy	5,000 cy
Upper ½-Mile Reach	3,000 cy	4,000 cy
Total	27,000 cy	9,000 cy

The above information provided the basis for the near-term design activities presented in this Detailed Work Plan, and specifically those portions of the Hill 78 and Building 71 Consolidation Areas that would need to be developed to support the 1999 response actions.

1.4 Coordination of Future Design and Construction Activities

As previously indicated, the majority of the technical design information contained in this Detailed Work Plan relates to the near-term activities necessary to support the 1999 response actions. For example, a significant level of technical detail is presented concerning the construction of that portion of the Building 71 Consolidation Area that will be needed for the next several months (as discussed in subsequent sections of this work plan, this area requires a significantly greater level of development, relative to the Hill 78 Consolidation Area, due to the extent of site preparation activities, the installation of a base liner system, and other area-specific conditions). Separate from the near-term design and construction activities, it is important that the 1999 consolidation activities are conducted in such a manner that is consistent with future consolidation activities. To achieve this objective, it was necessary to perform several technical evaluations to quantify the anticipated final conditions associated with each consolidation area.

Preliminary information concerning the design, construction, and final configuration of the Hill 78 and Building 71 Consolidation Areas was initially presented in the Conceptual Work Plan. Since that time, GE has conducted several activities to further define the anticipated final conditions and configuration of these areas. This updated information for each consolidation area has been used to delineate the final configuration of these areas (described in Section 2), and to support the selection and design of various support facilities and locations (e.g., access roads, stormwater management, access restrictions, etc.). This information also served as the starting point for the near-term activities associated with the 1999 response actions.

Beyond the response actions targeted for 1999, it will be necessary to further assess and coordinate future response actions within the Site and the corresponding need to develop/expand the consolidation areas to accommodate the materials generated by such response actions. As the need for expansion of the consolidation area(s) is identified, supplemental design, construction, operation, and monitoring activities will be conducted and provided to the Agencies in future RD/RA submittals. Such submittals will be prepared by GE and submitted to USEPA in a manner that reflects the sequence of the anticipated use of each consolidation area. For example, GE will periodically assess the volume of materials that may be subject to consolidation, and the corresponding need for additional consolidation space or new consolidation areas, as well as potential closure and post-closure activities. This approach allows GE to properly and efficiently sequence the activities related to the on-plant consolidation areas.

1.5 Format of Detailed Work Plan

The remainder of this Detailed Work Plan is presented in nine sections. The title and brief overview of each section follows:

Section 2 - General Requirements for On-Plant Consolidation Areas, presents information that serves as the overall basis for the design, construction, operation, monitoring, closure, and post-closure monitoring of the future on-plant consolidation areas. Included in this section are the Performance Standards for the on-plant consolidation areas, the identification and discussion of Applicable or Relevant and Appropriate Requirements (ARARs), and the various components involved in the construction of the consolidation areas. Using this information, the anticipated final conditions of the Hill 78 and Building 71 Consolidation Areas, and the New York Avenue/Merrill Road area (if needed), have been developed and presented in this section.

Section 3 - Pre-Design Activities, summarizes the activities recently conducted by GE to supplement the available site information and support the design of the Hill 78 and Building 71 Consolidation Areas. Included is a summary of recent topographic and subgrade utility surveys, and pre-design soil and groundwater investigations.

Section 4 - Overview of 1999 Design Activities, describes the near-term design activities performed for the Hill 78 and Building 71 Consolidation Areas to support the 1999 response actions for the Allendale School Property and Upper ½-Mile Reach of the Housatonic River. The information presented in this section applies the general requirements presented in Section 2 for the specific portion of the consolidation areas identified for development in 1999.

Section 5 - 1999 Construction Activities, describes the activities that will be conducted prior to, during, and following the construction of the select portions of the consolidation areas. Several implementation-related details are presented in this section, including pre-mobilization activities, site preparation activities, construction sequencing and details, monitoring, and interim closure of these areas following their use in 1999. Also included in this section is information regarding the anticipated project organization and roles of the USEPA, MDEP, GE, and GE's Contractors; and the anticipated contractor procurement process.

Section 6 - Consolidation Area Operations, describes the general day-to-day activities involved in the operation of the on-plant consolidation areas, including the process of transporting, placing, grading and compacting the various consolidation materials; dust control; water management; equipment cleaning; and documentation.

Section 7 - Restoration Activities, describes the anticipated interim and final closure measures that will be taken at the consolidation areas and adjacent areas.

Section 8 - Future Groundwater Monitoring Program, describes the program that will be developed, once additional groundwater investigation results are received, to monitor groundwater quality during and following use of the consolidation areas.

Section 9 - Post-Closure Care, describes, generally, the types and scope of activities that will be performed once use of the on-plant consolidation areas has been discontinued and the areas are capped.

Section 10 - Schedule and Reporting, describes the anticipated performance and documentation of 1999 construction activities.

Throughout this Detailed Work Plan, numerous tables and figures and attachments are referenced. These materials supplement the text and provide more detailed information concerning various aspects of the consolidation areas. In addition, technical drawings are included as attachments to this Detailed Work Plan depicting the design for the construction of the 1999 portions of the consolidation areas. These drawings, in combination with other technical information, have been provided to a select list of qualified contractors for bidding and constructing the 1999 consolidation areas.

2. General Requirements for Consolidation Areas

2.1 General

This section of the Detailed Work Plan summarizes the information that has been and will be utilized to design, construct, and operate the on-plant consolidation areas. Initially, this section summarizes the Performance Standards for the on-plant consolidation areas (Section 2.2). Then, a discussion of various ARARs is provided (Section 2.3). The remainder of this section builds upon the general information presented in Sections 2.2 and 2.3 and describes the various components involved in the construction of the consolidation areas, including the installation, in certain cases, of a base liner system (and related facilities) and final consolidation area cap (Section 2.4), and the anticipated final conditions and configurations associated with each consolidation area (Section 2.5). Finally, Section 2.6 identifies several future design and construction components that will be evaluated and incorporated as appropriate.

The contents of this section are intended to provide general information concerning the overall design, construction, and operation of the future on-plant consolidation areas. This information was utilized in the near-term design of the consolidation areas to support the 1999 response actions, and will be applied to future efforts concerning the expansion/addition of existing or new consolidation areas. Finally, the majority of the information presented herein is related to the design and construction of the on-plant consolidation areas. Several other operational requirements associated with the consolidation areas, including daily activities, monitoring, closure, and post-closure monitoring, are addressed in separate sections of this Detailed Work Plan.

2.2 Performance Standards for On-Plant Consolidation Areas

The Performance Standards for the on-plant consolidation areas are as follows:

1. The maximum horizontal extent and maximum height of materials to be placed in the on-plant consolidation areas shall not exceed the following criteria:

Consolidation Area	Approximate Horizontal Extent of Consolidation Area ¹	Approximate Maximum Elevation of Consolidation Area ²
Hill 78 Consolidation Area	5.6 acres	1,050
Building 71 Consolidation Area	4.4 acres	1,048
New York Avenue / Merrill Road Area	1.6 acres	1,027

1 Area does not include adjacent ancillary facilities.

2 Elevation is based on the National Geodetic Vertical Datum (NGVD).

In addition to the above criteria, the slope of the final surface topography for each consolidation area shall be between 4 and 33 percent.

2. GE may use the on-plant consolidation areas for the permanent consolidation of materials that are excavated or otherwise removed as part of Removal Actions to be conducted by GE for areas outside the Housatonic River, the Upper ½-Mile Reach of the Housatonic River, and building demolition debris from Brownfields re-development activities, subject to the limitations identified below.
3. USEPA may use the on-plant consolidation areas for the permanent consolidation of materials that are excavated or otherwise removed from the Housatonic River sediments and banks as part of a Removal Action to be conducted by USEPA for the 1½-Mile Reach of the Housatonic River between the Lyman Street bridge and the confluence of the East and West Branches of the River, subject to the limitations identified below and subject to the provisions of an Access and Services Agreement being negotiated between GE and USEPA for the 1½-Mile Reach Removal Action.
4. Materials to be consolidated within the Hill 78 Consolidation Area shall be limited to materials that contain less than 50 ppm PCBs (as determined by an appropriate composite sampling technique or other techniques approval by USEPA) and are not classified as a hazardous waste under regulations issued pursuant to RCRA.
5. Materials to be placed in the on-plant consolidation areas shall not include free liquids, free product, intact drums and capacitors, or other equipment that contains PCBs within its internal components. Such materials, if any, shall be sent to an appropriate off-site facility for disposal.

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6. GE shall operate the on-plant consolidation areas in accordance with the operations plan and requirements set forth in Section 6 of this Detailed Work Plan.
 7. Upon completion of use, GE shall cover the on-plant consolidation areas with an engineered landfill/consolidation area cap, as described in Section 2.4.1 of this Detailed Work Plan.
 8. GE shall perform post-closure inspections and maintenance of the on-plant consolidation areas in accordance with a Post-Removal Site Control Plan for such areas to be submitted by GE, as approved by USEPA.
 9. GE shall conduct groundwater monitoring associated with the on-plant consolidation areas in accordance with the groundwater monitoring requirements outlined in Section 8 of this Detailed Work Plan and to be described further in supplemental groundwater monitoring proposals to be submitted by GE, as they are approved by USEPA.

2.3 Applicable or Relevant and Appropriate Requirements (ARARs)

This section describes, for the on-plant consolidation areas, the applicable or relevant and appropriate requirements (ARARs) under federal and state environmental laws. Under the National Contingency Plan (NCP) under CERCLA, removal actions must attain ARARs only to the extent practicable considering the exigencies of the situation (40 CFR 300.415(j)). A requirement under federal and state environmental laws may be either “applicable” or “relevant and appropriate” to a removal action. “Applicable requirements” are those cleanup standards, standards of control and other substantive requirements, criteria, or limitations that are promulgated under federal or state environmental laws and that specifically addresses a hazardous substance, pollutant, contaminant, response action, location, or other circumstance found at the site (40 CFR 300.5). “Relevant and appropriate requirements” are those promulgated cleanup standards, standards of control, and other substantive requirements, criteria, or limitations that, while not applicable to a hazardous substance, pollutant, contaminant, response action, or other circumstance at the site, address problems or situations sufficiently similar to those encountered at the site that their use is well suited to the particular site (*ibid.*). Only those state substantive standards that are identified in a timely manner and that are more stringent than federal requirements are ARARs (*ibid.*).

To constitute an ARAR, a federal or state standard or requirement must be substantive in nature. Administrative requirements, such as those relating to permitting, documentation, reporting, and record keeping, are not ARARs. In addition, to constitute an ARAR, the standard or requirement must have been formally promulgated by a federal or state agency. Federal and state advisories and guidance documents that have not been formally promulgated as binding laws or regulations do not constitute ARARs. Such items need not be complied with, although they may be considered in formulating a removal action.

In determining whether compliance with an ARAR is practicable, the lead agency may consider all appropriate factors including: 1) the urgency of the situation; and 2) the scope of the removal action [40 CFR 300.415(j)]. In addition, even if compliance with an ARAR is deemed practicable based on consideration of the above factors, compliance may nonetheless be waived under any of the circumstances for which CERCLA allows a waiver for remedial actions [see section 121(d)(4) of CERCLA; 40 CFR 300.430(f)(1)(ii)(c)]. These circumstances, which also apply to removal actions (see 40 CFR 300.415(j); USEPA, 1991), include the following:

- **Greater Risk:** Compliance with the ARAR will result in greater risk to (or less protection of) human health and the environment than an alternative;
- **Technical Impracticability:** Compliance with the ARAR is technically impracticable from an engineering perspective, such as when a state surface water discharge standard requires the treatment of contaminants to below analytical detection limits;
- **Equivalent Standards of Performance:** An alternative to ARAR compliance will allow a standard of performance equivalent to (or better than) that required by the ARAR; and
- **Inconsistent Application:** a proposed state ARAR has not been applied consistently to other response actions within the state.

The ARARs identified for the on-plant consolidation areas are set forth in Tables 1 and 2. These tables include a proposal regarding attainment of each listed ARAR. For ARARs that will not or may not be attained, the tables note that fact and present the basis for waiver of such ARARs.

2.4 Consolidation Area Construction Components

All on-plant consolidation areas will be subject to the installation of a multi-layer, low-permeability cap following their active use. A base liner will be installed prior to the use of the Building 71 Consolidation Area (as well as the New York/Merrill Road Consolidation Area, if that area is utilized in the future for consolidation activities). A summary of these construction components is presented below.

2.4.1 Final Cover System

A final cover system will be constructed over the consolidation areas as they reach their final condition and configuration. The objectives of the final cover system for these areas are to restrict the potential for direct contact with the consolidation materials, and limit the possibility for constituent migration via erosion/runoff, infiltration, and airborne pathways. The proposed final cover system will generally consist of the following components, from bottom to top, as shown on Figure 3:

- A geosynthetic clay layer (GCL) over surfaces with a slope of less than 10 percent;
- A 60-mil textured high density polyethylene (HDPE) flexible membrane liner (FML);
- A geosynthetic drainage composite (GDC) layer;
- An 18-inch thick (minimum) soil cover layer; and
- A 6-inch thick (minimum) topsoil layer with vegetative cover.

The final cover system illustrated on Figure 3 will satisfy the requirements of the Massachusetts Contingency Plan (MCP) for the construction and performance of engineered barriers [310 CMR 40.0996(4)(c)], which include the following key elements:

- Prevent direct contact with contaminated media;
- Control vapors or dust emanating from contaminated media;
- Minimize erosion and any infiltration of precipitation that could jeopardize the integrity of the barrier or result in potential migration of contaminants;
- Be constructed of materials resistant to degradation;
- Be consistent with the pertinent technical standards under RCRA (40 CFR Part 264, Subpart N) and state hazardous waste regulations (310 CMR 30.600) or equivalent standards (as described below);

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- Be constructed to include a defining layer (e.g., geotextile) to visually identify the beginning of the impermeable layer;
 - Be monitored and maintained to ensure the long-term integrity and performance of the barrier; and
 - Be constructed to not include an existing building, structure, or cover unless these features are designed and constructed as an engineered barrier.

The proposed cap will also be consistent with the pertinent technical standards under RCRA and state hazardous waste regulations for final cover design and construction [40 CFR 264.310(a) and 310 CMR 30.633(1)], which consist of the following :

- Provide long-term minimization of migration of liquids through the closed landfill;
- Function with minimum maintenance;
- Promote drainage and minimize erosion of the cover or abrasion of the cover;
- Accommodate settling or subsidence so that the cover's integrity is maintained;
- Sustain vegetative growth (where applicable) to enhance habitat quality; and
- Have a permeability less than or equal to the permeability of any bottom liner system (e.g., pavement) or the natural subsoils present.

Note that installation of a final cover system, as presented above, will not occur in 1999. As the need for a final cover system is anticipated in the future GE will prepare, for USEPA review and approval, detailed and technical design information concerning the final cover system.

2.4.2 Base Liner System

Under the settlement agreement, the subbase of any *new* on-plant consolidation area must be suitably prepared, although a liner and leachate collection system are not required. However, GE has elected to enhance the subbase of the Building 71 Consolidation Area (and the New York Avenue/Merrill Road Consolidation Area, if constructed) to include additional containment and demarcation prior to the placement of materials in these consolidation areas. Specifically, following the performance of site preparation activities (e.g., removal of vegetation and grading of the existing surface), a multi-component base liner system with provisions for leachate collection and handling will be installed, as shown on Figure 4.

2.5 Anticipated Final Conditions

By incorporating the information presented in Sections 2.2 through 2.4, the anticipated final configuration of the Hill 78, Building 71, and New York Avenue/Merrill Road Consolidation Areas has been determined. Figure 5 provides an illustration of the anticipated final conditions.

2.6 Future Design and Construction Considerations

As previously described, given the expedited nature of the near-term activities associated with the Hill 78 and Building 71 Consolidation Areas, the focus of this Detailed Work Plan is on those activities necessary to support the anticipated 1999 response actions. In addition, several future design/construction components have been evaluated preliminarily based on the anticipated final conditions and configuration of the consolidation areas. For example, for the Building 71 Consolidation Area, the presence of a base liner system necessitates the design and installation of a leachate collection system and associated facilities. For this system, the technical details and installation requirements for 1999 were developed and are presented in this Detailed Work Plan. However, to support this information, it was necessary to evaluate the overall system requirements that may be needed under a long-term or large-scale operation of this consolidation area. Similarly, for both the Hill 78 and Building 71 Consolidation Areas, a stormwater management program (with appropriate facilities and controls) has been preliminarily evaluated with the pertinent components incorporated as necessary into the 1999 design. Finally, several preliminary evaluations (e.g., evaluations of slope stability, settlement/subsidence, cap soil erosion, etc.) have been performed to support certain of the Performance Standards presented in this section. Additional details concerning these evaluations will be presented as appropriate in future design submittals to the USEPA (e.g., a future stormwater management plan associated with the final consolidation areas).

3. Pre-Design Activities

3.1 General

Over the last few months, several activities related to the on-plant consolidation areas have been conducted, including the:

- Identification, evaluation, selection and preliminary design of potential consolidation areas;
- Performance of a detailed topographic survey to update the previously available information and support future design and construction activities;
- Performance of a detailed utility location survey; and
- Performance of pre-design soil and groundwater investigation activities.

These pre-design activities are discussed in detail in the following sections.

3.2 Topographic Survey

GE recently prepared a detailed topographic survey of the Hill 78 and Building 71 areas. This survey included the identification/location of existing above- and below-grade utilities and structures, current surface cover types and conditions, presence and type of vegetation, and surface topography (one-foot contours). The survey has facilitated the development of a detailed site base map (presented as Drawing A-1 in Attachment A), that has been used to support the performance of detailed technical design activities discussed in Section 4 of this Detailed Work Plan.

3.3 Utility Location Survey

GE has recently performed a utility survey at the GE Plant Area in the vicinity of the Hill 78 and Building 71 Consolidation Areas. The survey identified above-ground and below-grade utilities including, but not limited, to the following:

- Subsurface drainage lines;
- Overhead steam lines;
- Underground electric, sanitary, and water lines; and
- Overhead utilities.

The survey also identified the location of several other pertinent structures, including easements, wells (both supply and monitoring), fire hydrants, and electric manholes. The information obtained from the survey is presented on Drawing A-2, and has been used during the development of the detailed technical design of the consolidation areas.

3.4 Pre-Design Field Investigations

3.4.1 Soil Investigations

GE has conducted a supplemental soil sampling and analysis investigation in the areas associated with the Hill 78 and Building 71 Consolidation Areas. Sampling was distributed over the two areas as shown on Figure 6. The sampling locations were selected to supplement previously collected soil sample data in these areas. The previous sampling locations are also shown on Figure 6, and the results of those investigations were presented in the Conceptual Work Plan.

Between May 25 and 28, 1999, GE collected and analyzed 27 soil samples from a total of nine soil boring locations. Samples were collected utilizing direct-push sampling methods to a depth of 15 feet below grade. In addition, one soil sample was collected near boring/well H78B-28/28R from a depth of 1- to 6-feet to supplement existing data in this area. All soil sampling procedures were conducted in accordance with GE's Sampling and Analysis Plan/Data Collection and Analysis Quality Assurance Plan (SAP/DCAQAP) (draft dated October 1998). Upon completion, the boreholes were abandoned by backfilling with bentonite. Boring logs are included as Attachment B to this Detailed Work Plan.

At each new boring location, soil samples were collected from the 0- to 1-foot, 1- to 6-feet, and 6- to 15-foot depth intervals and analyzed for PCBs, while five soil samples were analyzed for those non-PCB constituents listed in Appendix IX of 40 CFR 264, plus 2-chloroethyl vinyl ether, benzidine, and 1,2-diphenylhydrazine (Appendix IX+3), excluding herbicides and pesticides. The supplemental soil sample collected at boring H78B-28/28R was analyzed for PCBs. The results of these analyses are presented in Tables 3 and 4.

3.4.2 Groundwater Investigations

As described in Section 8 of this Detailed Work Plan, GE will conduct a groundwater monitoring program to assess potential impacts to groundwater quality that may be attributable to the consolidation areas. To provide

information on existing groundwater conditions at and near the consolidation areas, and to serve as a basis for comparison to future monitoring results, GE is conducting preliminary groundwater investigations prior to construction of the consolidation areas. This “baseline” groundwater sampling program involves a total of twelve monitoring wells selected to provide spatial representation on all sides of the consolidation areas (i.e., upgradient, downgradient, and cross-gradient). The locations of the wells are shown on Figure 7. Included in this program are four existing wells (78-1, 78-6, H78B-15, and NY-4) and eight new wells (OPCA-MW-1 to OPCA-MW-8).

The new monitoring wells were installed between May 26 and June 8, 1999. These wells were screened to intercept the water table, which was encountered at depths between 10 and 18 feet below grade. Well construction information for each monitoring well is presented in Table 5.

The new wells have just recently been installed and developed, and will be allowed to equilibrate for approximately one week prior to sampling. At that time, the groundwater elevation at each monitoring well will be measured to provide information on the direction of groundwater flow in this area. Then, groundwater samples will be collected from each of the twelve monitoring wells and submitted for laboratory analysis of Appendix IX+3 constituents, excluding herbicides and pesticides. The results of the baseline groundwater sampling event will be submitted in an addendum to this Detailed Work Plan following completion of the laboratory analyses.

4. Overview of 1999 Design Activities

4.1 General

This section summarizes the technical design activities that have been conducted for the 1999 portion of the Hill 78 and Building 71 Consolidation Areas. For the Hill 78 Consolidation Area, relatively limited design activities were necessary, since (a) a base liner system will not be installed in this area, (b) an interim surface cover was installed in this area in 1991 so that very little additional site preparation activities are needed, and (c) the area identified for use is within a relatively flat portion of the former landfill area. During the 1999 consolidation activities, approximately 27,000 cubic yards of material will be placed within the limits of the Hill 78 Consolidation Area. Subsequently, a temporary 3- to 6-inch thick interim soil cover will be placed over all exposed consolidation materials, as described in Section 6 of this Detailed Work Plan.

The Building 71 Consolidation Area will be utilized for the consolidation of TSCA- and RCRA-regulated materials. For 1999, construction and consolidation activities will be generally limited to the southeast area of the Building 71 Consolidation Area as depicted on Figure 8. Based on the design information presented in this Detailed Work Plan, it is anticipated that up to approximately 18,000 cubic yards of material can be placed within the limits of the 1999 portion of the Building 71 Consolidation Area. This material will be placed and graded in such a manner to facilitate future construction of the consolidation area and installation of the final cover system.

Drawings A-1 through A-12 to this Detailed Work Plan summarize engineering design that has been completed for the construction of the subgrade, liner system, and leachate collection system, as appropriate, for the 1999 portion of the Hill 78 and Building 71 Consolidation Areas. The following design drawings are included in that attachment:

- Drawing A-1 - Existing Site Plan;
- Drawing A-2 - Existing Utilities Plan;
- Drawing A-3 - Site Development Plan;
- Drawing A-4 - Subgrade Plan;
- Drawing A-5 - Top of Liner and Leachate Collection System Plan;
- Drawing A-6 - Storm Sewer Relocation Plan and Profile;
- Drawing A-7 - Liner System Details;
- Drawing A-8 - Leachate Collection System Details;
- Drawing A-9 - Leachate Collection Manhole Details;

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- Drawing A-10 - Storm Sewer Relocation Details;
 - Drawing A-11 - Drainage Details; and
 - Drawing A-12 - Stormwater Basin and Erosion Control Details.

The remainder of this section provides additional information related to the technical design of the 1999 portions of the Hill 78 and Building 71 Consolidation Areas. For the reasons identified in Section 4.1 above, the majority of this section pertains to the design of the Building 71 Consolidation Area.

4.2 Subgrade Preparation

To support the installation of the base liner system (refer to Section 2.4) and subsequent operations, several activities will be performed to prepare the subgrade for the 1999 portion of the Building 71 Consolidation Area. The existing ground surface will be cleared and grubbed, removing all organic and deleterious materials. Any removed vegetation will be chipped and stockpiled on-site for future use by GE. Building 71 (and related structures) will also be demolished, and the superstructure will be removed to accommodate subgrade preparation. Subsurface foundations associated with Building 71, and the adjacent concrete storage tank dike, will be removed as necessary to accommodate the subgrade grading plan. Following clearing, grubbing, and demolition activities the existing subgrade will be prepared according to Drawing A-4 - Subgrade Grading Plan.

4.3 Storm Sewer Relocation Design

The storm sewer system located within the eastern portion of the Building 71 Consolidation Area conveys stormwater from the adjacent General Dynamics parking lot to a pipe located near the entrance to the U.S. Generating Company facility, and ultimately across Merrill Road as shown on Drawing A-2. The system is comprised of 15-inch-diameter clay and concrete pipes, concrete manholes, a drainage swale, a 20-inch-diameter steel pipe, and a 12-inch-diameter concrete pipe. Since the 1999 portion of the Building 71 Consolidation Area occupies portions of this system, the affected components of the system will either be removed or abandoned-in-place, and replaced at a new location.

Based on hydraulic calculations, the capacity of the current system is approximately 8.4 cubic feet per second (cfs). To avoid surcharge conditions and possible flooding at upstream locations, the new storm sewer system was designed to provide approximately the same hydraulic capacity as the current system. Specifically, the capacity

of the new system components is approximately 8.9 cfs. Also, design parameters included relocating the new system to a location and depth that would allow for ease of construction, and minimize disturbance to existing site features such as the fence line and overhead steam pipe.

Drawing A-6 depicts the design of the new storm sewer system and its relocation around the Building 71 Consolidation Area. The upgradient portion of the new storm sewer begins at a new storm sewer manhole located in the parking area approximately 60 feet east of Building 71 (referred to as MH No. 1 on Drawing A-6). A new 15-inch-diameter polyvinyl chloride (PVC) pipeline will be installed in the southern wall of the new manhole, and will continue in a southeasterly direction for approximately 184 feet to a new 4-foot-diameter concrete manhole (referred to as MH No. 2 on Drawing A-6). From this location, the 15-inch-diameter PVC pipeline will continue in a southerly direction for approximately 220 feet to a new 4-foot-diameter concrete manhole (referred to as MH No. 3 on Drawing A-6). From this location the 15-inch-diameter PVC pipeline will continue westerly for approximately 95 feet to a new 4-foot-diameter concrete manhole (referred to as MH No. 4 on Drawing A-6). Manhole No. 4 is designed with a vertical drop between the inlet and outlet inverts of approximately 3 feet. From this manhole the 15-inch PVC pipeline continues in a westerly direction for approximately 180 feet to a new 5-foot-diameter concrete manhole (referred to as MH No. 5 on Drawing A-6). Manhole No. 5 is located at the intersection of an existing 20-inch-diameter steel storm sewer pipeline, and an existing 12-inch-diameter concrete pipeline. The 20-inch-diameter steel pipeline will be removed to allow for both the installation of MH No. 5 and a new 15-inch-diameter PVC pipe from the Building 71 Consolidation Area stormwater basin as shown on Drawing A-4. The new MH No. 5 will be installed such that the existing 12-inch-diameter concrete pipeline discharges from MH No. 5.

4.4 Well Abandonment

As shown on Drawing A-3, there are several monitoring wells located in the anticipated 1999 portion of the Building 71 Consolidation Area. Prior to the installation of the base liner system (Section 4.5), these wells will be abandoned in accordance with MDEP requirements concerning such activities. In addition to the above, there is one inactive production well that will be abandoned per MDEP requirements and with consent from the U.S. Generating Company.

4.5 Base Liner System

Following subgrade preparation, the demolition of Building 71, the relocation of the existing storm sewer line, and well abandonment activities, a base liner system will be installed within the portion of the Building 71 Consolidation Area to be utilized in 1999 (1999 portion). The liner system is depicted on Drawing A-7 and consists of the following components from bottom to top:

Base Liner System

- A 6-inch thick (minimum) select fill subbase layer; and
- A 60-mil textured HDPE FML.

Side Slope Liner System

- A non-woven geotextile; and
- a 60-mil textured HDPE FML.

A 6-inch thick subbase layer will be utilized as a grading layer for the FML where necessary. The subbase soil will be a general fill material free from deleterious matter such as roots, stumps, trash, and other debris. Based on the extent of subgrade preparation (i.e., surface grading to attain the design grades) and the suitability of the existing soils, such materials may be utilized for construction of the subbase layer. If not possible, materials will be brought in from an off-site location and used to construct the subbase layer.

Sixty-mil-thick, textured HDPE FML will extend across the Building 71 Consolidation Area, extend up the perimeter berms and existing embankment and terminate in an anchor trench as shown on Drawing A-7. An interior berm will also be constructed on the north and west sides of the 1999 portion of the Building 71 Consolidation Area as part of the leachate management system and temporary stormwater controls. The FML will extend over the interior berm, terminating approximately 10-feet outside of the interior berm. This 10-foot extension will facilitate future construction phases as the Building 71 Consolidation Area is expanded.

Soil materials used during construction of the liner system will meet the geotechnical requirements presented in the Construction Quality Assurance Plan (CQAP) included as Attachment C to this Detailed Work Plan. Screening and other mechanical means of modification may be necessary to achieve the quality assurance/quality control (QA/QC) requirements. The anticipated material quantities for the liner system installation are presented below.

Anticipated Material Quantities for the 1999 Base Liner System Installation	
Base Liner Component	Estimated Material Quantity
Subbase Fill (including Berms)	2,500 cubic yards
60 mil Textured HDPE FML	82,000 square feet

It should be noted that the majority of the required subbase fill material may be available from on-site (i.e., from within the Building 71 Consolidation Area).

As part of the base liner system, a perimeter berm will be constructed along the southern and western sides of the Building 71 Consolidation Area as shown on Drawing A-4. The purpose for the perimeter berm is to provide sufficient height of the liner system above the consolidation area floor to allow for leachate containment and for anchorage of both the liner and final cover systems. The berm will be constructed to a minimum height of 3 feet above the consolidation area floor and have 3 horizontal to 1 vertical side slopes.

As discussed above, to facilitate temporary termination of the liner system and to provide for temporary stormwater management, an interior berm will be constructed along the northwestern side of the Building 71 Consolidation Area as shown on Drawing A-5. As with the perimeter berm, the interior berm will be constructed to a minimum height of three feet above the consolidation area floor and have 3 horizontal to 1 vertical side slopes. The interior berm and associated temporary, exterior grading will allow for interception and conveyance of stormwater run-on away from the lined consolidation area.

4.6 Leachate Management System

The 1999 portion of the Building 71 Consolidation Area will include the installation of a leachate management system. The leachate management system will provide for collection, conveyance, and interim storage of leachate generated during 1999 operations. Portions of the system were also designed to accommodate the future expansion of the leachate management system during future construction phases.

A geosynthetic drainage composite (GDC) layer, will be used to collect any leachate that percolates through the consolidation material to the liner system. Any leachate will then flow by gravity through the GDC to a 6-inch diameter perforated HDPE leachate collection pipe, located within the 1999 portion of the Building 71 Consolidation Area. The leachate collection pipe will penetrate the perimeter berm, as presented on Drawing A-8, and discharge into a subgrade manhole. To allow for future expansion of the Building 71 Consolidation Area, the leachate collection pipe will penetrate the interior berm as shown on Drawing A-5. At the penetration point, the leachate collection pipe will be converted from perforated to a solid pipe as it passes through the berm. The pipe will daylight on the opposite side of the berm and be fitted with a temporary cap. Subsequent construction of the Building 71 Consolidation Area will utilize this section of pipe to connect into and expand the existing leachate management system. Once leachate drains to the pumping manhole, it will be pumped to an on-site interim, leachate storage tank. For the 1999 construction phase of the Building 71 Area, the leachate storage tank will likely consist of a temporary 20,000-gallon Frac tank. The leachate stored within the Frac tank will be removed and treated at GE's existing 64-G Groundwater Treatment Facility or, alternatively, to an appropriate off-site location. Once the final cover system is constructed, use of the temporary storage tanks will be discontinued and a permanent storage tank will be installed to contain the leachate. The design capacity of the storage tank will be determined based on the anticipated rate and volume of leachate generation from the Building 71 Consolidation Area following completed closure activities.

4.7 Stormwater Management

Stormwater will be managed both during construction and for the post-closure period of the Hill 78 and Building 71 Consolidation Areas. The objective of stormwater management is to collect, convey, and discharge stormwater runoff away from the consolidation areas in a manner that minimizes the potential for flooding, soil erosion, and sediment migration into the surrounding areas.

During construction and shortly thereafter, the design objective for stormwater runoff control is to reduce the potential for erosion of recently placed soil and areas disturbed due to construction activities. Temporary sediment control devices (i.e., silt fences, hay bales, diversion berms) will be employed until a permanent, vegetative stand is established and the temporary devices are no longer required. The minimum locations identified for devices are shown on Drawing A-3. Additional locations may be determined during construction based on changing site conditions.

Once the final cover system construction is completed, permanent stormwater control structures will be installed. The final cover system design will include a comprehensive stormwater management system that will collect stormwater runoff and convey it to select locations for controlled discharge. Drainage structures (e.g., ditches, mid-slope swales and culverts) will be constructed and maintained throughout the post-closure period. Stormwater basins will be employed where necessary, to attenuate peak flows from the consolidation areas.

Permanent stormwater control structures proposed for the Hill 78 and Building 71 Consolidation Areas have been, or will be, designed to accommodate the anticipated peak flow conditions associated with both the 2- and 10-year, 24-hour storm events. Permanent stormwater control devices to be constructed during 1999 include a perimeter drainage ditch located along the interior of the paved perimeter access road as well as a stormwater basin located to the south of the Building 71 Consolidation Area.

The perimeter drainage ditch will serve to intercept runoff resulting from the perimeter access road and from the side slope of the consolidation area perimeter berm. The interior surface of the ditch will be stabilized with vegetation. Temporary erosion control matting will be placed and maintained within the ditch to minimize the potential for erosion of the ditch surface until vegetation is sufficiently established. The perimeter ditch will convey collected runoff to the stormwater basin as shown on Drawing A-4.

The stormwater basin is provided to attenuate peak flow conditions associated with development of the Building 71 Consolidation Area. Inflow to the stormwater basin will be discharged to the existing storm sewer system located immediately south of the basin. The basin will serve to moderate post-development stormwater flows to the existing storm sewer system at discharge rates which do not exceed those presently estimated for the existing Building 71 Consolidation Area.

In addition to the perimeter ditch and stormwater basin, two drainage culverts will be installed within the perimeter drainage ditch at the southern end of the Building 71 Consolidation Area to facilitate access to the perimeter berm, leachate collection manhole, and stormwater basin. The inlet and outlet ends of the culverts will include to use of either loose or reinforced riprap to dissipate flow velocities and to minimize the potential for erosion.

5. 1999 Construction Activities

5.1 General

Prior to constructing the Building 71 Consolidation Area base liner system and initiating subsequent consolidation activities at this and the Hill 78 Consolidation Area, several site preparation activities will be performed. These activities will include provisions for site security, installation of erosion/sedimentation control measures, clearing of vegetation, demolition and disposal of existing structures, and relocation of site utilities and other facilities. Each of these activities is further described below.

5.2 Project Organization

During the course of constructing and operating the consolidation areas, several different organizations will be involved, with the role of each depending on the particular aspect of the project. This section identifies the organizations expected to be involved with this project, and their associated roles and responsibilities. Included is a listing of key personnel, descriptions of duties, and lines of authority during the project. Additional information regarding the organizations/personnel and their associated responsibilities is provided below.

5.2.1 United States Environmental Protection Agency

The USEPA will serve as the lead regulatory agency for this project. The USEPA will provide a Project Manager (PM) to coordinate the USEPA's involvement and to receive all notices, reports, plans, and other documents prior to, during, and following the project. The identified PM for this project is:

Michael Nalipinski
U.S. Environmental Protection Agency
Site Evaluation and Response Section I (HBR)
One Congress Street
Boston, MA 02203
(617) 918-1268
Fax (617) 917-1494

In addition to the PM, other USEPA personnel (or designated contractors) will be involved in this project, and likely provide a continuous on-site presence. However, absence of a USEPA representative will not be cause for delay or stoppage of work. Where necessary, the USEPA will be responsible for coordinating efforts of other regulatory agencies (e.g., the MDEP).

5.2.2 Massachusetts Department of Environmental Protection

The MDEP will assist the USEPA in reviewing and overseeing the various RD/RA activities associated with this project removal action. The MDEP will provide a Project Manager to administer MDEP's responsibilities and all notices, reports, plans, and other documents prior to, during, and following the project. The identified MDEP Project Manager for this project is:

John Ziegler
Project Manager
Bureau of Waste Site Cleanup
Department of Environmental Protection
436 Dwight Street
Springfield, MA 01103
(413) 755-2250
Fax (413) 784-1149

5.2.3 General Electric Company

GE will be responsible for the overall performance and management of the project. Such responsibilities include, but are not limited to, the following:

- Serve as primary point of contact with the USEPA, MDEP, and local officials;
- Review all written notices, reports, plans, and other documents prior to submittal to the Agencies;
- Provide updates of project activities and schedule to the Agencies;
- Assess and resolve potential modifications to the proposed project activities, and communicate proposed modifications to the Agencies;
- Direct/coordinate activities of the contractor, supervising contractor, and other GE-contracted organizations involved with this project;
- Ensure that all work is performed in conformity with the conditions of this Detailed Work Plan and associated submittals;

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- Conduct construction progress meetings as needed;
 - Monitor quality assurance/quality control (QA/QC) activities during construction; and
 - Coordinate the performance of this and other concurrent removal actions and consolidation activities within the Pittsfield/Housatonic River Site.

GE will provide a Project Coordinator to administer GE's role on this project. The identified GE Project Coordinator for this project is:

John F. Novotny, P.E.
General Electric Company
100 Woodlawn Avenue
Building 11-250
Pittsfield, MA 01201
(413) 494-3177
Fax (413) 494-2700

5.2.4 Supervising Contractor

GE will utilize a supervising contractor to assist in the overall management of the project. Responsibilities of the supervising contractor include, but are not limited to, the following:

- Review various submittals provided by the Contractor;
- Provide on-site observation of project activities;
- Provide documentation of project activities;
- Provide technical assistance/issue resolution related to the implementation of the project;
- Implement monitoring activities, prior to, during, and following project activities; and
- Assist GE in verifying that activities are performed in accordance with this Detailed Work Plan.

For this project, GE will utilize Blasland, Bouck & Lee, Inc as the supervising contractor. BBL's primary contact will be:

James M. Nuss, P.E., LSP
Blasland, Bouck & Lee, Inc.
6723 Towpath Road, P.O. Box 66
Syracuse, NY 13214-0066
(315) 446-9120
Fax (315) 445-9161

5.2.5 Contractor

GE will select one or more contractors to perform the activities associated with this project. The primary role of the contractor will be to implement the activities outlined in this Detailed Work Plan and provide all labor, materials, equipment, and services necessary to perform the project. Additionally, the Contractor will participate in construction progress meetings to address the project status, schedule, test results, observations and findings, technical issues, design changes, and upcoming activities.

5.3 Contractor Procurement

A Request for Proposal (RFP) for construction and operation of the 1999 portions of the consolidation areas has been prepared and distributed to solicit bids for performance of the work. The primary functions of the RFP are to: 1) identify to prospective contractors the scope of work necessary to complete the project; 2) provide a basis by which contractors can develop a cost proposal; and 3) indicate the specific materials, equipment, and standards to be utilized in performing the construction activities. As discussed previously, the drawings included as Attachment A to this Detailed Work Plan will be utilized as the basis for contractor bidding. Additionally, technical specifications will be included within the RFP.

Concurrent with USEPA review of this Detailed Work Plan, GE is in the process of procuring a contractor to perform the activities outlined in this Detailed Work Plan, including a pre-bid meeting and site visit with prospective contractors, receipt and analysis of contractor proposals, and the identification of and contracting with the selected contractor. As discussed in Section 10 of this Detailed Work Plan, the activities described above will be completed in late June to allow initiation of on-site activities shortly after lodging the Consent Decree and receiving USEPA approval of this document.

5.4 Pre-Mobilization Activities

Subsequent to the submittal of this Detailed Work Plan and prior to the initiation of on-site activities, a number of pre-mobilization activities will be conducted. Following selection, the Contractor will be required to prepare, and submit to GE for review, several documents. For most elements of construction, the Contractor will prepare and submit detailed plans, schematics, and other construction-related documents for GE's review. The objective of this requirement is to monitor the Contractor's understanding of the project and the Detailed Work Plan requirements, and prevent any misinterpretation of the technical specifications that may otherwise impact the project objectives or schedule. The required submittals are expected to include the following:

- Health, Safety, and Contingency Plan;
- Site Operations Plan;
- Work schedule;
- A summary of materials and procedures to be used to construct and operate the consolidation areas;
- Name, locations, and quantity of proposed backfill materials; and
- Name(s) of subcontractor(s) to be used for the project.

Collectively, the above submittals are intended to demonstrate that the Contractor (a) has an adequate understanding of the scope of the project; (b) has developed a project sequence that can efficiently perform all on-site activities within the allowable schedule; (c) will utilize acceptable materials, products, and procedures; and (d) will perform all activities in a manner that is protective of on-site workers and the surrounding community. Two of the submittals identified above -- the Health, Safety, and Contingency Plan (HSCP) and the Site Operations Plan -- are discussed in more detail below.

Health, Safety, and Contingency Plan

The Contractor will be required to implement a project-specific HSCP. This project-specific HSCP must meet the minimum requirements established in the *General Facility Health and Safety Plan* (GE, June 1993) and 29 CFR 1910 and 1926. The plan must address those activities scheduled to be undertaken by the contractor and present required information including, but not limited to, training, identification of key personnel (including the contractor's Health and Safety Officer), medical surveillance, site hazards, work zones, personal safety equipment and protective clothing, personal air monitoring, equipment cleaning, and material safety data sheets. A

Contingency Plan will also be included within the HSCP, and will set forth procedures for responding to emergency conditions or events that may occur during the performance of the project. In addition, the Contingency Plan will include discussion on the following topics:

- Storm water control in the event of heavy precipitation to control the potential migration of PCB-containing materials off site;
- Procedures for controlling fires, dust, odor, and noise;
- Actions to be taken during severe weather conditions;
- Actions to be performed during equipment breakdown periods; and
- Emergency procedures to be performed when accidents (serious and minor) occur.

In addition to the preparation of the HSCP by the Contractor, any other contractors or subcontractors to either GE or the primary contractor will be responsible for developing and implementing a task-specific worker health and safety plan. The same requirements/provisions referenced above regarding the HSCP will be addressed in each task-specific plan.

Site Operations Plan

The purpose of the Site Operations Plan will be to summarize the materials, procedures, timelines, and controls that the Contractor intends to utilize during the project. This plan will be prepared in consultation with GE and its supervising contractor and will address, but not be limited to, the following items:

- Detailed work schedule;
- Proposed excavation stabilization measures;
- Excavation Plan;
- Materials Handling and Staging Plan;
- Dewatering and Water Management Plan;
- Equipment cleaning procedures;
- List of equipment to be used on-site;
- Property protection procedures; and
- Dust control measures.

GE will conduct one or more project kick-off meetings with personnel from the USEPA, MDEP, Contractor, U.S. Generating Company, and General Dynamics. The intent of these meetings will be to discuss the anticipated project sequence and schedule, present any modifications to the removal actions as presented in this Detailed Work Plan, summarize the health, safety, contingency, and security measures that will be implemented and maintained during the removal actions, and discuss specific questions and concerns identified by the meeting attendees.

5.5 Site Controls

Site controls are currently in place which restrict access to the portions of the plant where consolidation area construction, and related work will be performed. Fencing is located along Tyler Street Extension, and along the General Dynamics parking lot which immediately abut the consolidation areas. Security fencing also surrounds the GE property to the south and west of the consolidation areas, thereby entirely enclosing the plant property which the consolidation areas are situated on. Access to the plant property from New York Avenue is controlled by remotely activated gates. Persons are not allowed on the property without clearance from security personnel.

Additional warning signs may be posted along the perimeter fencing in the vicinity of the entrance gates to prevent trespassers from entering the area. To restrict access during construction activities, security fencing may be installed at certain locations such as cleaning areas, stockpile areas, etc. Also, for the duration of construction activities, a sign-in/sign-out sheet will be maintained at the site. All on-site personnel and site visitors will be required to sign in upon entering the site and sign out upon leaving.

Implementation of safe work practices will also provide for additional site security during construction activities. Safe work practices that will contribute to overall site security include the following:

- Maintaining temporary construction fencing around all open excavations and other potentially dangerous areas;
- Parking heavy equipment within designated areas each night and removing keys;
- Maintaining an organized work area, including proper storage of all tools and equipment; and
- Conducting a daily security review.

5.6 Site Access Locations and Roads

The consolidation areas may be accessed using two different plant entrance locations. The selected locations will be dependent on several factors including the location from which the consolidation materials are being generated, the time of day, traffic patterns, etc. Potential entrance locations are shown on Figure 9, and include the entrance at Tyler Road leading to the Building 78 Area, and the entrance at New York Avenue leading to the Building 78 Complex and Building 14-E.

To provide equipment access to the consolidation areas, temporary and permanent access roads will be constructed. The temporary access roads will be constructed by performing some limited grading (if necessary), then placing geotextile followed by gravel. Permanent access roads will be paved. Figure 9 and Drawings A-3 and A-11 indicate the anticipated locations of access roads. The actual location of the access roads will be selected in the field based upon equipment limitations and requirements, and the progression of consolidation activities.

5.7 Contractor Mobilization

A project start-up meeting will be scheduled before the Contractor mobilizes to the site. Specifically, the objectives of this meeting will be to:

- Review contract requirements;
- Establish a detailed project schedule;
- Review the roles and responsibilities of all project participants; and
- Resolve any other issues raised by the parties.

Prior to the start of construction activities, the Contractor will mobilize the appropriate personnel, subcontractors, equipment, and materials to the construction area. The mobilization of these items may occur in phases or as needed based on the specific purpose and timing of their use. In addition to the above, the contractor will also mobilize temporary office and sanitary facilities. All materials, equipment, etc. brought on to the site will be located in an area that will not interfere with subsequent construction activities.

5.8 Survey Control

Prior to the commencement of soil removal activities, a detailed site survey will be conducted. Included in this survey activity will be the following:

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- Re-establishment of the existing survey control and baseline information;
 - General layout of the anticipated site operations; and
 - Locations of above- and below-grade utilities and site features that may be affected by the project.

5.9 Erosion and Sedimentation Controls

The selection of specific erosion and sedimentation control measures for the construction and restoration activities will depend on a number of considerations, including the scope of activities, site topography, and operational/maintenance considerations. In addition to the various physical types of erosion control measures that can be installed, certain operational and management practices will be implemented throughout the construction project to provide an additional measure of erosion and sedimentation control. This section describes some of the temporary controls that will be installed before initiating earthwork activities. Drawing A-3 indicates the approximate locations of the erosion and sedimentation control measures to be installed during construction activities in 1999. The specific types and locations of these controls, will be determined and adjusted in the field based on site-specific considerations related to drainage, topography, work activities, etc.

Before initiating earthwork activities, appropriate erosion control measures will be installed to minimize the potential for rainfall-induced migration of soils into or out of the areas subject to construction. These measures may include the placement of geotextile fencing and/or hay bales along the edges of disturbed areas. Geotextile fencing consists of a woven geotextile fabric material suspended between support posts and anchored into the ground. The geotextile fence limits the velocity and the amount of suspended materials in the runoff water, thus limiting the downgradient transport of soils.

Similar to geotextile fences, staked hay bales minimize velocities associated with overland flow, and provide filtration to minimize the downgradient migration of suspended soils. Hay bales may be installed around the perimeter(s) of work areas as required and will be imbedded into the existing ground surface by wooden stakes. Hay bales may be used alone or in combination with geotextile fences.

After the erosion and sedimentation control measures have been installed, remaining site preparation activities will be performed. The erosion and sedimentation control devices will be maintained for the duration of the project until such time that site restoration activities have provided a final vegetated surface cover (as appropriate) in all

areas. During this time, erosion and sedimentation control devices will be inspected on a regular basis and maintained and/or adjusted as necessary, based on site conditions and site activities.

5.10 Removal and Disposal of Vegetation

After the erosion controls are in place, and before construction activities begin within a given area, brush and trees will be removed to allow project activities to occur without significant obstructions. Vegetation clearing will only be performed within the proposed consolidation areas, or as necessary to provide access to these areas. To the extent practical, efforts will be made to minimize the removal of vegetation currently surrounding the areas planned for consolidation activities to provide a visual and sound buffer during active consolidation activities. Above-grade materials that are cleared from the construction areas will be chipped, shredded, and/or cut for subsequent use as landscaping materials, or for stabilizing wet or soft material delivered to the consolidation area (if any). Below-grade materials (i.e., tree stumps and roots) that are removed as part of the clearing activities will be chipped and/or shredded, and used for stabilizing wet material delivered to the consolidation area (if any), or mixed with dry materials as the materials are consolidated. Cleared materials will not be disposed of off-site.

Equipment used during clearing activities will be cleaned prior to leaving the construction area using appropriate equipment cleaning procedures (refer to Section 6.15).

5.11 Identification and Removal / Abandonment of Utilities

Utilities within the work area that may impede construction of the consolidation areas will either be abandoned or rerouted around the proposed consolidation areas. Based on a review of utilities in this area, it appears that a number of below-grade pipelines and structures are located within the horizontal limits of the consolidation areas (refer to Drawing A-2).

Several subgrade pipelines and related appurtenances located within the eastern portion of the Building 71 Consolidation Area will either be removed, abandoned in-place, or relocated as part of the Building 71 demolition activities. Specifically, the following below-grade pipelines and structures will be removed or abandoned in-place as part of Building 71 demolition activities:

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- Foundation drains associated with the former tank dike (6-inch diameter asbestos pipes), and Building 71 (8-inch diameter asbestos pipes) will be abandoned in-place;
 - The 60-foot long, 8-inch diameter asbestos pipe draining the former tank dike into a catch basin located at the southeast corner of Building 71 will be abandoned in-place;
 - Three catch basins located at the southwest and southeast corners of Building 71, and at the southeast corner of the former tank dike, will be removed;
 - The 220-foot long, 8-inch diameter asbestos pipe currently draining stormwater from Building 71, into an open ditch south of Building 71 will be abandoned in-place;
 - The 380-foot long, 15-inch diameter RCP that currently drains stormwater from the adjacent General Dynamics parking lot into a drainage ditch south of Building 71 will be removed or abandoned in-place. The two in-line manholes related to this stormwater drain line will be removed; and
 - The 20-inch diameter steel culvert crossing beneath the access road leading to the U.S. Generating Company facility will be modified (as discussed below).

As discussed in Section 4, a new 15-inch diameter PVC pipe will be constructed to convey stormwater from the adjacent General Dynamics parking lot into a new manhole located at the southwest corner of the Building 71 Consolidation Area. The new manhole will collect stormwater runoff from the Building 71 Consolidation Area and the General Dynamics parking lot, and convey it to the existing 20-inch steel culvert pipe (modified to accommodate the new piping and manhole). Discussion related to the design and construction of the new stormwater drainage system at the Building 71 Consolidation Area is provided in Section 4.

While above-grade utilities will not impede construction of the consolidation areas, the Contractor will be required to contact the appropriate utility locating services, prior to performance of the work, to identify all utilities (above or below ground) that may be present in the work area. Appropriate measures will be taken by the Contractor to protect these utilities (if any).

5.12 Subgrade Preparation

Since a base liner will be constructed within the Building 71 Consolidation Area, the current ground surface will be prepared prior to liner installation. Subgrade activities in this area will entail regrading the surface within the consolidation area to an approximate slope of two percent, and regrading the earthen bank located along the eastern

edge of the consolidation area to form a level and smooth surface. The proposed subgrade grading plan is presented on Drawing A-4. Following regrading activities, all objects greater than three inches, as well as any other deleterious materials (e.g., sticks, roots, broken glass, etc.), will be removed from the bank along the eastern perimeter of the consolidation area. Due to the steepness of the bank, a nonwoven geotextile will then be installed as a cushion layer in lieu of a soil subbase layer.

Along the base of the consolidation area, all objects greater than six inches and other deleterious materials will be removed, and a 6-inch thick layer of clean soil will be installed. Both subgrade preparation activities will result in a uniform surface over the entire consolidation area free of any materials that could potentially puncture or otherwise damage the overlying FML. Installation of the subgrade materials (i.e., geotextile and soil materials) will be in accordance with the CQAP provided as Attachment C to this Detailed Work Plan.

5.13 Base Liner Installation

Following the performance of subgrade preparation activities, an FML will be installed within the designated portion of the Building 71 Consolidation Area (approximately 85,000 square feet). The purpose of the FML is to provide a barrier separating the consolidation materials from the underlying native soils. The FML will be 60 mil-thick, textured on both sides, and will be constructed of HDPE. The FML will be placed over the designated 1999 portion of the consolidation area, and will be anchored in a 2-foot deep anchor trench at perimeter locations where future consolidation activities will not extend beyond. The CQAP attached to this Detailed Work Plan provides a discussion related to the minimum allowable material qualities, acceptable installation techniques, and the testing required for acceptance of the FML.

5.14 Leachate Collection System

A leachate collection system will be installed over the FML to collect and convey any residual water that may be entrained in the materials placed in the consolidation area, or water that enters the consolidation area via rainfall or snowmelt. The leachate collection system will be comprised of a GDC, in combination with 6-inch diameter HDPE perforated drainage piping.

GDC consists of an HDPE drainage net with nonwoven geotextile bonded to both sides of the net. The GDC will be installed directly on top of the FML and anchored within the same perimeter trench. The purpose of the GDC

is to collect consolidation and infiltration water, and convey it to the central collection piping network. Installation and testing of the GDC will be in accordance with the CQAP provided as Attachment C to this Detailed Work Plan.

Leachate collection piping will be utilized with the Building 71 Consolidation Area to efficiently convey leachate from within the GDC to the perimeter of the consolidation area, and ultimately to the leachate storage manhole. The HDPE piping will be six inches in diameter, and will have two lines of ½-inch perforations along its length. The piping will be installed along the low point of the base liner system to provide for maximum collection. To provide protection from equipment operating above the collection piping, an approximate 2-foot berm of clean gravel will be placed over the pipe prior to the placement of any consolidation materials over the pipe. A nonwoven geotextile will be placed over the gravel berm to provide a filter against silt and sand infiltration into the gravel and pipe.

Solid-walled pipe (i.e., no perforations) will be used once the collection piping penetrates the perimeter berm. As an added safety measure, the 6-inch diameter pipe will be placed within a 10-inch diameter solid pipe, thereby providing a double-contained system outside of the consolidation area.

5.15 Leachate Storage

A leachate holding facility will be constructed at the southern end of the Building 71 Consolidation Area to temporarily store leachate until it is transported either off-site or an existing GE facility for treatment. At this time, given the current scheduling constraints, only the critical components of the storage facility will be constructed prior to the initiation of consolidation activities in 1999. These components include a leachate storage manhole, pumps, and temporary storage tank(s). The layout of the system is depicted on Drawing A-5.

6. Consolidation Area Operations

6.1 General

This section summarizes the type and scope of activities that will be involved in the day-to-day and year-to-year operation of the on-plant consolidation areas. While several sections of this Detailed Work Plan are related specifically to the 1999 portions of the consolidation areas, this section includes information that is generally applicable to the overall operations of any future on-plant consolidation area. The operational procedures and activities discussed in this section include the following:

- Site Security;
- Waste Characterization and Transport;
- Vehicle Access;
- Construction Equipment;
- Environmental Monitoring;
- Material Placement;
- Dust Control;
- Surface Water Management;
- Leachate Management;
- Erosion Control;
- Odor Control;
- Daily and Interim Cover Placement;
- Vehicle and Equipment Cleaning; and
- Contingency Plan

Other operational controls, including air monitoring, groundwater monitoring, and site health and safety are discussed in other sections of this Detailed Work Plan.

6.2 Site Security Plan

As discussed in Section 5, security fencing is currently located along the entire perimeter of the GE Plant property within which the Hill 78 and Building 71 Consolidation Areas are located. Remotely monitored and controlled gates operated by GE security personnel restrict access to the site to authorized personnel only. Additionally, site security personnel routinely patrol the plant property to ensure its security. The perimeter fencing and gates will

be maintained during construction and operation of the consolidation areas. If it necessary to remove portions of the fence to provide access to certain area of the consolidation areas (e.g., to make repairs, replace vegetation, etc.), the following site security measures will be taken:

- Only the minimum quantity of fence necessary to perform the required work will be removed;
- Additional warning signs will be placed at the locations where the fence was removed (if not already present);
- The work required at that location will be performed as expeditiously as possible to limit the time the fence is removed; and
- Temporary fencing will be installed and maintained at the location through the duration of the work performance.

To further restrict access during operational activities, security fencing may be installed at certain locations such as cleaning areas, stockpile areas, etc. Also, for the duration of consolidation activities, a sign-in/sign-out sheet will be maintained at the site for all on-site personnel and site visitors.

6.3 Material Characterization

Materials that are generated as part of the response actions conducted for the areas comprising the Site will have been characterized as part of the RD/RA activities specific to those areas. At a minimum, characterization activities for soils and sediments (which comprise the majority of the materials subject to consolidation) will consist of sampling results for PCBs and other non-PCB Appendix IX+3 constituents. The results of these characterizations will serve as the basis for the identification and performance of the necessary response actions. In addition, for those areas where the response actions will involve soil removal and on-plant consolidation, the available site data will be used to assess the appropriate consolidation area. For the most part, it is anticipated that the presence of PCBs (rather than Appendix IX+3 constituents) will dictate the specific consolidation area to be utilized. However, in the event that elevated levels of Appendix IX+3 constituents are present in the materials subject to consolidation, testing to determine whether the materials would constitute hazardous waste under RCRA will be performed. Collectively, the sampling results will determine the proper consolidation location. Non-TSCA, non-RCRA materials will be consolidated at the Hill 78 Consolidation Area; while TSCA-/RCRA-regulated materials will be consolidated at the Building 71 Consolidation Area.

In addition to chemical characterizations of the materials subject to consolidation as described above, certain other provisions will be established regarding the characterization and suitability of the materials subject to consolidation. For example, prior to the transport of materials from its point of origin (i.e., the area within which the response actions are being undertaken), testing will be performed if necessary to confirm that the materials do not contain excess moisture; such testing will utilize the standard paint filter test.

6.4 Waste Transport

Waste transport to the consolidation areas will be performed by the various contractors performing the response actions at each area within the Pittsfield/Housatonic River Site (e.g., the Allendale School Property, the Upper ½-Mile Reach, building demolitions, etc.). Once materials are adequately characterized as described in Section 6.3, such materials will be transported to the appropriate consolidation areas or off-site for proper disposal, as needed. Details regarding the method(s) of transportation, and transportation routes will be developed as part of the RD/RA activities for each specific area of the Site.

6.5 Vehicle Access

Vehicles transporting consolidation materials will access the Hill 78 and Building 71 Consolidation Areas using the existing plant roadways. Additional roads will be constructed within GE property to gain access to the consolidation areas where necessary. These roads may be incorporated into the consolidation area as they are no longer needed, or removed upon final closure of the consolidation area.

6.6 Construction Equipment

Construction equipment to be used during the consolidation activities at the Hill 78 and Building 71 Consolidation Areas will likely include bulldozers, compactors, payloaders, and excavators. Since separate consolidation areas are available for wastes with different characteristics (e.g., TSCA versus non-TSCA materials), separate equipment will be utilized at each area. Other equipment used will include dump trucks (or other appropriate transport vehicles) and water trucks for dust control. During periods when the consolidation areas are in active use, the equipment (excluding the transport trucks) will be dedicated to the consolidation areas, and left on-site at the end of each day. Prior to any equipment leaving the working area of an on-plant consolidation area, cleaning will be

conducted in accordance with Section 6.15 of this Detailed Work Plan. The operation, coordination, and cleaning of the equipment will be the responsibility of the Contractors performing the Response Actions.

6.7 Air Monitoring

During all on-site activities that could potentially produce dust, an air monitoring program for particulates will be conducted to assess potential impacts to ambient air due to these activities, and the need for dust control measures. Such a particulate monitoring program will be in addition to any other monitoring performed by the on-site contractors as part of their overall health and safety monitoring. Such monitoring will be conducted at four stations located in a generally symmetrical pattern around the perimeter of the property, as shown on Drawing A-3. The specific locations for these stations will be selected based on the location and nature of the site activities, predominant wind direction, location of potential receptors, availability of power, site accessibility, site security, and existing ambient air monitoring data.

At each station, real-time particulate monitoring will be performed using a MIE dataRAM Model pDR-1000. The dataRAM uses a passive sampling technique and light scattering photometer to determine particulate concentrations. The data RAM has a measurement range of 0.001 to 400 mg/m³. Monitoring will be conducted for approximately 10 hours daily, from 7 am to 5 pm, during construction-related activities. Particulate data will be recorded and averaged by the instruments' datalogger for each hour of the day.

For each day of monitoring and at regular intervals during each day, the particulate data from the downwind monitor will be compared with the data from the background (upwind) monitor. If the average 10-hour PM₁₀ concentration at the downwind monitor exceeds the average concentration at the background monitor, the downwind concentrations will then be compared with a notification level of 120 µg/m³ (micrograms per cubic meter) -- which represents 80 percent of the current 24-hour National Ambient Air Quality Standard (NAAQS) for PM₁₀ (150 µg/m³). This level has been selected to allow notice to GE before concentrations reach the level of the 24-hour NAAQS. Any exceedances of the notification level or the NAAQS will be immediately reported to the OSC, and GE's Project Coordinator will discuss with the OSC the need for and type of response actions. In the event that perimeter air monitoring action levels are exceeded on a daily average basis, or the instantaneous readings indicate a significant increase in upwind/downwind readings, or visible dust related to site operations is observed, dust control measures will be implemented. Such measures may include water spray, modification of work procedures, and/or suspension of work. If such measures do not result in reductions of perimeter air

monitoring levels to below the action levels, work will be stopped pending further evaluation of work practices, potential upwind particulate sources, and additional control measures. Also, certain other site controls and practices will be implemented to limit the potential for and amount of dust generation at the Property. These include covering exposed soil areas when not in active use, covering soil stockpiles, reducing vehicle speeds, and utilizing water sprays as necessary (e.g. in roads, work areas, etc.).

In addition to the above, GE will also conduct ambient air monitoring for PCBs during construction and operation of the consolidation areas. GE is currently developing a separate monitoring plan for the activities to be submitted to the Agencies for review. That plan will propose the specific monitoring locations, protocols, frequency, etc., and will be submitted to the USEPA prior to implementation of site construction activities.

6.8 First Lift Placement

To avoid any damage to the GDC or FML, certain precautions will be taken during placement of the first lift of consolidation materials within the consolidation area. Specifically, the first lift of material will consist of select soils or sediments that are free of sharp objects, materials greater than 6-inches in diameter, or any other deleterious materials that could potentially damage the underlying geosynthetics. As an added precaution, the first layer of material will be placed in a single, 2-foot-thick lift to prevent damage to the underlying geosynthetics caused by the equipment placing and/or handling the consolidation materials.

6.9 Material Placement/Progression

Materials will be placed in the consolidation areas in a way that reduces the daily working area, provides flexibility for material segregation (e.g., building debris), and allows for maximum consolidation capacity. Materials will be placed in 2-foot-thick lifts progressing, in sequence, across the extent of the consolidation area and, in the case of the Building 71 Consolidation Area, starting at the lowest point and progressing upgradient. A minimum of five passes will be made on each entire lift with an appropriately-sized vibratory smoothdrum or sheepsfoot roller. Additional lifts will be placed as material is delivered to the site. Placing the consolidation materials in lifts will allow for the following operational controls:

- A larger area allows for equipment maneuverability when placing and compacting the consolidation materials;
- Stormwater can be managed within the area and away from active consolidation activities;

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- Materials can be adequately compacted to minimize voids, and reduce potential for future differential settlement and slope failure; and
 - Non-soil/non-sediment wastes (e.g., construction debris, vegetative matter, etc.) can be segregated, processed, and managed separately.

The consolidation materials will be placed in lifts until the maximum proposed interim grades (or in some instances, final grades) are achieved or until material is no longer generated for that particular construction season.

6.10 Dust Control

The potential for dust generation at the Hill 78 and Building 71 Consolidation Areas will be controlled throughout the consolidation activities using a variety of mitigative measures (both temporary and permanent). Dust will be controlled based on visual observations and/or the results of airborne particulate monitoring to be conducted during construction and consolidation activities, as described in Section 6.7.

During the consolidation activities, dust will be controlled by the use of limited quantities of water (as necessary), and temporary silt fencing, as wind barriers, while certain other site controls and practices will be implemented to limit the potential for and amount of dust generation at the consolidation areas. These include covering exposed soil areas when not in active use, reducing vehicle speeds, and minimizing work activities (to the extent possible) during windy, dry days. Finally, daily and interim covers, as described in Section 6.14, will be used as warranted, throughout the fill progression activities to reduce dust generation.

6.11 Surface Water Management

Surface water run-off generated by precipitation or snow melt will be managed throughout the consolidation activities. During the 1999 activities, temporary diversion berms, swales, silt fencing and/or hay bales will be used, as necessary, to direct surface water run-off away from the active portion of the consolidation area, while more permanent measures will be designed and constructed as the use of the consolidation areas increase. The anticipated locations of these diversion methods are shown on Drawing A-3. In addition, daily and interim cover systems will be utilized to direct any surface water run-off to the perimeter of the consolidation areas.

6.12 Leachate Handling

Leachate generated within the Building 71 Consolidation Area will be managed using the leachate collection, conveyance, and storage systems described in Section 5. For 1999, leachate management activities will consist of the installation of pumps within the new leachate manhole, and pumping of leachate to a temporary storage tank(s). Leachate in the storage tank(s) will be removed on an as-needed basis and transported either off-site or to GE's treatment facility for treatment.

A permanent and more automated handling system, possibly consisting of a pumping station, and an above-grade, double contained tank will be considered and evaluated as a means to manage leachate in subsequent years of consolidation activities.

6.13 Erosion Control

The potential for erosion at the Hill 78 and Building 71 Consolidation Areas will be minimized throughout the consolidation activities using a variety of temporary and permanent measures. During the consolidation activities, erosion may be controlled with a combination of temporary, small earthen berms, silt fencing, check dams, and/or hay bales. These controls will be established at critical areas along the consolidation areas, and relocated/supplemented as necessary during consolidation activities. Approximate locations of temporary erosion controls at the consolidation areas are shown on Drawing A-3.

6.14 Daily and Interim Covers

A daily cover will be installed over the active portions of the Hill 78 and Building 71 consolidation areas at the end of each working day. The cover will consist of polyethylene sheeting (20 mil) or similar materials. Sandbags, soil piles, or other heavy objects will be installed along the perimeter of the sheeting to secure the sheeting. The purpose of the daily cover is to minimize precipitation from entering the underlying consolidation materials and generating leachate and to minimize the potential for migration of PCBs and other constituents via airborne dust. The cover will be removed at the beginning of each day of consolidation activities.

Once a portion of the consolidation areas reaches the final design height, but is not large enough to warrant installation of a final cover, or when the consolidation activities are completed for a given year and final design

heights have not been achieved, an interim cover will be installed. The interim cover will consist of a 3- to 6-inch thick layer of clean soil capable of supporting vegetation. Depending on the season that the interim cover is installed, the cover may be seeded with a quickly germinating rye grass to establish an erosion resistant vegetative cover. The interim cover will provide cover for the underlying consolidation materials, and potentially serve as a subbase for the future final cover system. Given its thickness, the interim cover would not be removed prior to future consolidation activities in that area (if any).

6.15 Vehicle and Equipment Cleaning

Equipment cleaning will be utilized to prevent the transport of PCBs or other potential site materials that may be present on any equipment used for consolidation activities. Contractors will be responsible for establishing and implementing specific equipment cleaning procedures, including the following:

- Construction of an equipment cleaning area consisting of an impermeable barrier sloped to a collection sump;
- Visual inspection of each transport vehicle prior to leaving the unloading area. Accumulations of soil or sediment on the vehicle tires or other exterior surfaces will be removed manually or, if necessary, by using a high-pressure water spray in the equipment cleaning area;
- Cleaning of material handling equipment used to move PCB-containing soils or sediment in the equipment cleaning area before it enters non-work areas, handles “clean” materials (e.g., daily cover materials) or leaves the work area. Equipment cleaning will be performed utilizing a high-pressure, low volume water spray;
- Collection and transport of liquid materials (and other residual material collected during equipment cleaning) to GE’s existing treatment facility for treatment by GE; and
- Wipe sampling of equipment in accordance with TSCA regulations following final cleaning prior to demobilization from the work area.

6.16 Operations Documentation

Construction activity reports will be completed on a daily basis to document construction activities. The daily reports will include the following information:

- Date;
- Weather and temperature;

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- Description of the activities performed;
 - Listing of the equipment and labor used;
 - Estimate of the amount of materials placed on that date based on the number of trucks;
 - Description of the materials placed on that date; and
 - Description of any problems encountered, and the mitigative measures implemented.

6.17 Contingency Plan

An Emergency Preparedness and Contingency Plan (Contingency Plan) has been developed and is provided as Attachment D to this Detailed Work Plan. This plan addresses the appropriate actions to be taken in the case of emergencies or unexpected, non-routine events during operation of the consolidation areas. The Contingency Plan is designed to minimize potential risks or hazards to worker and public health and the environment from any unplanned sudden or non-sudden events related to the consolidation areas. Separately, as discussed in Section 5, the Contractor selected by GE to construct the consolidation areas will also be required to prepare a contingency plan for those specific activities.

This plan includes a list of all emergency equipment that will be available at the consolidation areas, including fire extinguishing equipment, spill control equipment, communications and alarm systems (internal and external) and decontamination equipment. The Contingency Plan will be amended whenever: 1) there are changes in design, construction activities, operation or maintenance, or other conditions occur which could materially increase the potential for releases; 2) the list of emergency coordinators changes; or 3) the list of emergency equipment changes.

The Contingency Plan also provides contingency measures for potential spills and discharges from materials handling and/or transportation. It also presents the following:

- A description of the means, methods and facilities required to minimize impacts to soil, water, air, structures, equipment or materials resulting from a spill or release;
- Equipment and personnel to perform emergency measures required to contain any spill/release and to remove and properly dispose of any impacted media; and
- Equipment and personnel to perform cleaning measures that may be required for impacted structures, equipment, or material.

The Contingency Plan also provides the phone numbers for emergency agencies, including police departments, fire departments, state and federal emergency response teams, and hospitals that may be contacted in the case of emergencies.

6.18 Schedule Maintenance and Progress Reporting

The project status will be monitored and updated as part regular progress meetings and progress reporting. Progress meetings will be held periodically to discuss the status of day-to-day operations, schedule, health and safety items, outstanding issues, and overall project implementation issues.

In addition, GE will prepare monthly progress reports to be submitted to the Agencies, with copies to other pertinent parties. The monthly progress reports will include the following:

- Description of the activities performed;
- Results of any testing or investigations;
- Diagrams or drawings (if any) associated with the activities performed;
- Identification of any reports received or prepared;
- Supporting documentation of activities performed; and
- Brief descriptions of activities to be performed in the following month.

6.19 Record Drawings

During construction, the Contractor will be required to maintain one set of drawings at the site, on which the Contractor will show all scope of work changes. These drawings will be kept current on a day-to-day basis in concert with the progress of the work. Where applicable, any changes marked on the drawings will include the notation “per Change Order No. ____”, or similar reference that cites the reason for the change.

The following items are examples of some of the types of changes that could occur and must be recorded by the Contractor:

- Change in limits/extent of construction;
- Change in construction materials;

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- Change in topographical contours of finished grades;
 - Additions to project activities;
 - Elimination of a project component; and
 - Unforeseen modifications made to existing underground utilities, fences, etc. made necessary by requirements of the work.

Upon completion of the project, the Contractor will provide the Record Drawings to GE for use in preparation of the Final Completion Report. In addition, a set of drawings will be retained on site to record the location of samples collected, final soil depths, changes to extent of consolidation activities, etc.

7. Restoration Activities

7.1 General

Once a consolidation area (or a significant portion of it) approaches its final design capacity, it will be subject to closure and restoration activities. Closure and restoration activities will consist of the installation of a final cover system over the entire area, the construction of appropriate drainage features, and establishment of vegetation on the surface of the cover and at other appropriate areas (e.g., buffer vegetation at the perimeter of the consolidation areas). These closure and restoration activities are further discussed below. The scope of other site restoration activities, particularly at the Hill 78 Consolidation Area (which will be subject to habitat enhancements), is currently under discussion, and will be addressed separately at a future date.

7.2 Restoration Activities

Each on-plant consolidation area will be capped with a final cover system as described in Section 2.4 of this Detailed Work Plan. As part of the closure/capping for each consolidation area, the surface of the final cover system will be vegetated as generally described in Section 2.4. Other site restoration activities will include the planting of vegetative species that will provide suitable erosion control, without interfering with the integrity of the surface cover. Areas adjacent to the consolidation areas will also be restored as necessary, including the removal of temporary access roads, and the repair/restoration of areas disturbed by the construction, use, and closure of the consolidation areas.

In addition to restoration of those areas affected by the on-plant consolidation activities, GE will also perform certain activities to possibly preserve and maintain areas that are located adjacent to, but not directly affected by, the consolidation areas. For example, to the extent practicable, GE will refrain from removing trees and other vegetation that may provide a visual barrier from off-plant locations. Furthermore, GE will evaluate possible measures that could be implemented prior to or during initial use of the consolidation areas, or upon closure of those areas, that could provide a visual barrier or other aesthetic value (e.g., planting of appropriate trees and other vegetation in areas offset from but along the outer perimeter of the consolidation areas).

8. ***Future Groundwater Monitoring Program***

8.1 General

This section describes the general groundwater monitoring program that GE will develop in connection with the operation and closure of the consolidation areas. The purpose of this program is to assess potential changes in groundwater conditions during consolidation activities at these areas, and to support evaluations concerning the need for further response actions, if necessary. In addition, the results of this groundwater monitoring program will provide a groundwater data set that can be utilized in conjunction with a separate large-scale groundwater monitoring program (to be described in the *Statement of Work for Removal Actions Outside the River*, which will be attached to the Consent Decree).

Following receipt of the results of the “baseline” groundwater investigation described in Section 3, GE will forward these results to the Agencies in a separate submittal, together with a detailed proposal outlining the specific components of the groundwater monitoring program.

GE’s proposal for this monitoring program will identify the particular monitoring wells to be sampled, the frequency of sampling, and any modifications to the list of Appendix IX+3 constituents for which the groundwater samples will be analyzed. As a starting point, all monitoring wells that were utilized during the baseline monitoring investigation will be considered for inclusion in this monitoring program. Initially, this program may include a phased approach, in which a subset of the monitoring well network will be monitored to evaluate potential impacts from the initial consolidation activities in the discrete portions of the consolidation areas being utilized. Other wells may be added to the program as consolidation activities proceed to other sections of the consolidation areas.

GE’s proposal will also present the proposed procedures and criteria for evaluating the sampling data from each monitoring event. These procedures will include a statistical comparison of the monitoring data from each event, on a location-by-location basis, with the prior monitoring data, including the “baseline” data, to identify instances in which the current data indicate an increase in the concentrations of dissolved-phase constituents relative to prior conditions. GE’s proposal will also specify the response actions that GE will consider and propose to the Agencies, as appropriate, in the event that a statistically significant increase in dissolved-phase constituents is detected in the sampling results from a given event, relative to prior data.

The following sections present a preliminary summary of the anticipated groundwater monitoring program during use of the consolidation areas. This program is subject to change based on an evaluation of the results of the

baseline groundwater monitoring event, future modifications in the design of the consolidation areas, or the scheduling of consolidation activities. As previously stated, the specific details of this program, based on the results of the pre-design investigation, will be proposed in conjunction with the submittal of the baseline groundwater monitoring results.

8.2 Groundwater Monitoring During Active Consolidation Activities

The initial monitoring wells to be included in this program were identified in Section 3, which described the baseline groundwater monitoring which GE has conducted. A total of 12 monitoring wells are available for inclusion in this program, including three upgradient wells (78-1, 78-6, and NY-4) and nine downgradient/cross-gradient wells (OPCA-MW-1 through OPCA-MW-8, and H78B-15), as shown in Table 5 and on Figure 7. Groundwater samples will be collected utilizing low-flow sampling techniques and will be tentatively analyzed for Appendix IX+3 constituents, excluding herbicides/pesticides (or other parameters as may be proposed by GE and approved by the Agencies). Depth to groundwater measurements will also be collected in conjunction with the sampling events to provide information on overall groundwater flow patterns near the consolidation areas.

Upon receipt from the laboratory, the groundwater monitoring data shall be presented in the next monthly progress report for overall work at the site. In addition, following each monitoring event, GE will prepare and submit to the Agencies a summary report describing the field activities, presenting the sampling results, and presenting the results of the required evaluations of the monitoring data. GE shall provide an evaluation of any elevated groundwater results that may be potentially attributable to activities at the consolidation areas, and if necessary, propose response actions to address such results. In these reports, GE may also propose modifications to the groundwater monitoring program, including, but not limited to, changes in the wells to be monitored, the frequency of monitoring at selected wells, or the constituents to be analyzed for.

8.3 Groundwater Monitoring During Post-Closure Period

Following the completion of consolidation activities at the consolidation areas and closure of those areas, GE will submit a proposal to USEPA for a post-closure groundwater monitoring program for the consolidation areas. That proposal will include a statistical assessment of all prior monitoring data, and will present an evaluation of, and proposed plan for post-closure future groundwater monitoring. It will also identify, for the post-closure monitoring program, the specific monitoring well locations, the frequency of future monitoring and reporting, the

constituents scheduled for analysis, the procedures for evaluation of the groundwater data, and the criteria for further response actions (if any).

9. Post-Closure Care

9.1 General

This section presents information pertaining to the anticipated post-closure activities for the consolidation areas. Certain activities must be performed after closure to ensure that the consolidation areas are performing as designed. Post-closure care activities include groundwater monitoring, regular periodic inspections and maintenance of the final cover system, as well as other components of the consolidation areas (e.g., the surface water drainage system and leachate management system), inspections and maintenance of certain other ancillary components (e.g., fences, warning signs, etc.), and the repair or replacement of items exhibiting deficiencies or performance below designed levels. The activities described in this section will continue until GE proposes, and USEPA approves, a modification or termination of any such activity.

9.2 Groundwater Monitoring

As discussed in Section 8, GE will submit a proposal to USEPA for a post-closure groundwater monitoring program for the consolidation areas. That proposal will identify the specific monitoring well locations, the frequency of future monitoring and reporting, the constituents slated for analysis, the procedures for evaluation of the groundwater data, and the criteria for further response actions.

9.3 Inspection and Maintenance

Following closure of the consolidation areas, GE will continue to inspect and maintain those consolidation areas, and to perform repair/replacement activities as needed, to ensure that the consolidation areas are performing as intended. These activities will include semi-annual inspections and maintenance of the final cover system, other components of the consolidation areas (i.e., the surface water drainage system, leachate management system, etc.), and certain ancillary components (e.g., fences, warning signs, etc.). Each of these inspection activities is discussed in the sections below.

9.3.1 Final Cover System

The overall integrity of the final cover systems will be assessed during periodic inspections. Consolidation area covers will be visually inspected for evidence of topsoil erosion, damage to the geosynthetic cover components (i.e., GDC, FML, and/or GCL), uneven settlement relative to the surrounding areas, and overall integrity. The final

cover system will be inspected to verify that vegetation has become established, and bare or sparsely vegetated areas will be repaired. In addition, the surfaces will be inspected for deficiencies in the soil layer overlying the geosynthetic cover components. Deficiencies may be evident as excessive erosion, vehicle ruts, surface water ponding, depressions, exposed or damaged geosynthetic cover components, or other abnormalities. GE will perform repairs and replacement at any areas exhibiting deficiencies or potential problems within the appropriate time period based on the severity of the deficiency or problem.

9.3.2 Surface Water Drainage System

The surface water drainage system will be included as part of the semi-annual inspection and maintenance activities. Components of the surface water drainage system, include:

- Perimeter ditches and swales;
- Drainage swales located along the slopes of the consolidation areas;
- Sedimentation basin(s); and
- Culverts and drainage pipes.

These components will be periodically monitored to determine whether they are performing as designed or whether erosion and/or blockage is occurring and their performance is being effected. The surface water drainage system components will be periodically inspected for evidence of erosion due to sparse vegetation, flow currents, storm-related surges, or are be detrimentally affected by obstructions. In areas where inspections indicate a decrease in the performance of a particular component due to erosion, steps will be taken to restore the condition by increasing the thickness of the erosion protection layer (e.g., grass, rip rap, etc.) to the original design depth. In areas where inspections indicate a decrease in the performance of a particular component due to a blockage, the item(s) obstructing the flow will be removed.

9.3.3 Leachate Handling System

Inspections and maintenance of the leachate pumping and storage system will also be performed by GE throughout the post-closure period. Inspection activities will consist of inspecting all mechanical parts (including pumps, float levels, piping, flow meters, etc.) and ensuring their proper performance. Periodic tests will also be performed on the auto-dialer system to verify its performance, and to confirm the line-of-contact is correct and accurate. Changes

to the names and telephone numbers within the auto-dialer system will be made as required. Mechanical repairs to the leachate pumping and storage system (when necessary) will be performed by a local subcontractor to GE qualified to make such repairs.

9.3.4 Perimeter Vegetation

During the two-year period following the planting and installation of vegetative material along the perimeter of the consolidation areas, the plantings will be inspected in April and October of each year to ensure that the vegetation is growing as anticipated and is providing the necessary erosion control and visual buffer. If needed, additional planting of similar size and species of plants and will be done to replace any dead or dying vegetation.

9.3.5 Ancillary Components

Ancillary components (e.g., fencing, warning signs, etc.) will be inspected to verify that these items are intact and functioning properly. GE will repair or correct any identified damages or deficiencies of such ancillary components. If warranted the components may be replaced with new components.

9.4 Documentation

Documentation of the inspection of consolidation areas will be maintained by GE, and will be provided to the Agencies as part of the monthly reporting program (when inspection and or maintenance activities were performed during that month for which the report is being submitted for). Monitoring reports will be prepared following the inspection activities, and will include the following information:

- A description of the type and frequency of inspection, maintenance, and/or monitoring activities conducted;
- A description of any significant modifications to inspection, maintenance and/or monitoring programs made since the submission of the preceding monitoring report;
- A description of any conditions or problems noted during the inspection and/or monitoring period which are or may be affecting the performance of the consolidation areas;
- A description of any measures taken to correct conditions which are affecting the performance of the consolidation areas;

-
- The results of sampling analyses and screening conducted as part of the monitoring and/or inspection program;
and
 - A description of any measures that may need to be performed to correct any conditions affecting performance of the consolidation areas.

10. Schedule and Reporting

10.1 Schedule for 1999 Construction Activities

At this time, it is anticipated that the Contractor will mobilize and begin construction in early July 1999. However, achievement of this mobilization date is dependent on receiving timely USEPA approval of this Detailed Work Plan and obtaining any other approvals necessary to commence work. Achievement of this mobilization date is also dependent upon lodging of the Consent Decree with the Court prior to the mobilization date.

Once a qualified contractor has been selected and all necessary approvals have been obtained, on-site activities can begin. On-site work to prepare the consolidation areas for use this year is estimated to take approximately one month.

Please note that the anticipated project schedule outlined above relates to the Hill 78 and Building 71 Consolidation Areas. The actual use of these areas, however, is contingent upon Agency approvals of the work plans prepared for the 1999 Removal Actions (i.e., the Upper ½- Mile Reach Removal Action and the Allendale School Removal Action). Delays in those approvals will require modification to the project schedule discussed herein.

10.2 Project Status

During the performance of 1999 consolidation activities, the project status will be reported in monthly reports to the USEPA and MDEP. Included will be a description of the construction and operation activities associated with the consolidation areas, including the results of any sampling, approximate quantities of materials consolidated, and documentation of any difficulties encountered (if applicable). Also, these reports will document deviations from the approved Detailed Work Plan (if any).

Tables

BLASLAND, BOUCK & LEE, INC.
engineers & scientists

TABLE 1

ARARs for Hill 78 Consolidation Area

Regulation	Citation	Requirements	Applicability/Appropriateness	Proposal Re Attainment
Federal ARARs				
TSCA Regulations (PCB Remediation Waste)	40 CFR 761.61	Establishes cleanup options for PCB remediation waste, including PCB-contaminated soils. Options include risk-based approval by EPA. Parties seeking risk-based approval must demonstrate that cleanup plan will not pose an unreasonable risk of injury to health or the environment.	Applicable to the extent Hill 78 Consolidation Area contains preexisting materials with PCBs \geq 50 ppm.	Materials subject to this regulation will not be added to Hill 78 Consolidation Area. However, to the extent this area already contains TSCA-regulated wastes, this requirement will be attained based on EPA finding that construction and use of this Consolidation Area per Work Plan will not pose an unreasonable risk to human health or the environment.
TSCA Regulations (Decontamination)	40 CFR 761.79	Establishes decontamination standards and procedures for removing PCBs from non-porous surfaces.	Applicable to decontamination of equipment used in consolidation excavation activities.	Will be attained in the event that equipment used in Hill 78 Consolidation Area requires decontamination for PCBs.
Clean Water Act NPDES Regulations (Stormwater Discharges)	40 CFR 122.26(c)(ii)(C) 40 CFR 122.44(k) 40 CFR 125.100-.104	Discharges of stormwater associated with construction activities are required to implement best management practices to control pollutants in stormwater discharges during and after construction activities.	Applicable to discharges of stormwater.	Will be attained by implementing erosion controls and stormwater management measures in accordance with Sections 4.7 and 6.1.3 of Work Plan.

TABLE 1

ARARs for Hill 78 Consolidation Area

Regulation	Citation	Requirements	Applicability/Appropriateness	Proposal Re Attainment
Federal ARARs (cont'd)				
RCRA Regulations for Hazardous Waste Management/Disposal Facilities (Landfill Closure and Post-Closure Care)	40 CFR 264.111 40 CFR 264.117 40 CFR 264.310	Standards for closure and final cover of hazardous waste landfills. Also, requirement for post-closure monitoring and maintenance.	Relevant and appropriate for capping and post-capping monitoring and maintenance of Consolidation Area to the extent it already contains materials that constitute RCRA hazardous waste.	Final cover will meet standards in 264.310(a) for cover design/construction. Post-closure monitoring and maintenance will be conducted in accordance with Sections 8 and 9 of Work Plan. These post-closure activities may not meet all requirements referenced in 264.111 and 264.117. To the extent such requirements will not be met, they should be waived as technically impracticable to achieve.
RCRA Regulations for Hazardous Waste Management/Disposal Facilities (Corrective Action Groundwater Monitoring and Protection)	40 CFR 264.100	Regulated units must monitor groundwater and comply with groundwater protection standards; hazardous constituents that exceed maximum concentration levels or alternative concentration levels must be removed or treated.	Relevant and appropriate to the extent Consolidation Area already contains materials that constitute RCRA hazardous waste.	Groundwater monitoring will be conducted in accordance with Section 8 of Work Plan, to be further described in Statement of Work for Removal Actions Outside the River (SOW). Criteria for further response actions to meet groundwater protection standards will be as set forth in SOW, which will be generally consistent with 264.100. To the extent these measures do not meet all requirements in that regulation, such requirements should be waived as technically impracticable to achieve.

TABLE 1

ARARs for Hill 78 Consolidation Area

Regulation	Citation	Requirements	Applicability/Appropriateness	Proposal Re Attainment
State ARARs				
Mass. Hazardous Waste Management Facility Regulations (Landfill Closure and Post-Closure Care)	310 CMR 30.582 310 CMR 30.592 310 CMR 30.633	Standards for closure and final cover of hazardous waste landfills. Also, requirements for post-closure monitoring and maintenance.	Applicable to the extent Consolidation Area already contains materials that constitute hazardous waste.	Final cover will meet standards in 30.633(1) for cover design/construction. Post-closure monitoring and maintenance will be conducted in accordance with Sections 8 and 9 of Work Plan. These post-closure activities may not meet all post-closure requirements of 30.582 and 30.592. To the extent such requirements will not be met, they should be waived as technically impracticable to achieve.
Mass. Hazardous Waste Management Facility Regulations (Corrective Action Groundwater Monitoring and Protection)	310 CMR 30.672	Regulated units must monitor groundwater and comply with groundwater protection standards; hazardous constituents that exceed maximum concentration levels or alternative concentration levels in groundwater must be removed or treated.	Applicable to the extent that Consolidation Area already contains materials that constitute hazardous waste.	Groundwater monitoring will be conducted in accordance with Section 8 of Work Plan, to be further described in Statement of Work for Removal Actions Outside the River (SOW). Criteria for further response actions to meet groundwater protection standards will be as set forth in SOW, which will be generally consistent with 30.672. To the extent these measures do not meet all requirements in that regulation, such requirements should be waived or technically impracticable to achieve.

TABLE 1

ARARs for Hill 78 Consolidation Area

Regulation	Citation	Requirements	Applicability/Appropriateness	Proposal Re Attainment
State ARARs (cont'd)				
Mass. Air Pollution Control Requirements	310 CMR 7.09	Prohibition against creating condition of air pollution in connection with dust generating activities.	Applicable to construction and site alteration activities generating dust.	Will be attained by implementating dust control measures and air monitoring in accordance with Sections 6.7 and 6.10 of Work Plan.

TABLE 2

**ARARs for Building 71 Consolidation Area
and Potential Consolidation Area at New York Ave./Merrill Road**

Regulation	Citation	Requirements	Applicability/Appropriateness	Proposal Re Attainment
Federal ARARs				
TSCA Regulations (PCB Remediation Waste)	40 CFR 761.61	Establishes disposal options for PCB remediation waste, including PCB-contaminated soils and sediments. Options include risk-based approval by EPA. Parties seeking risk-based approval must demonstrate that method will not pose an unreasonable risk of injury to health or the environment.	Applicable to disposal of PCB remediation waste, which includes soils and sediments at concentrations ≥ 50 ppm PCBs that were contaminated prior to April 18, 1978 and any PCB waste contaminated after that date where the original source was ≥ 500 ppm beginning on April 18, 1978, or ≥ 50 ppm beginning on July 2, 1979.	Will be attained based on EPA finding that construction and use of these on-plant consolidation areas per Work Plan will not pose an unreasonable risk of injury to health or the environment.
TSCA Regulations (Decontamination)	40 CFR 761.79	Establishes decontamination standards and procedures for removing PCBs from non-porous surfaces.	Applicable to decontamination of equipment used in consolidation activities.	Will be attained by implementing equipment cleaning procedures in accordance with Section 6.15 of Work Plan.
RCRA Regulations for Hazardous Waste Management/Disposal Facilities (Preparedness and Prevention)	40 CFR Part 264, Subpart C	Various requirements for design and operation of a hazardous waste facility to minimize possibility of fire, explosion, or sudden release.	Relevant and appropriate to placement of federal hazardous waste (if any) in these on-plant consolidation areas.	Will be attained. Operation of on-plant consolidation areas will comply with Section 6.17 of Work Plan and with the Health, Safety, and Contingency Plan that will be prepared by the contractor selected to perform the project.

TABLE 2

**ARARs for Building 71 Consolidation Area
and Potential Consolidation Area at New York Ave./Merrill Road**

Regulation	Citation	Requirements	Applicability/Appropriateness	Proposal Re Attainment
Federal ARARs (cont'd)				
RCRA Regulations Hazardous Waste Management/Disposal Facilities (General)	40 CFR 264.13-.19	Various requirements relating to waste analysis, security, inspections, personnel training, precautions to prevent accidental ignition or reaction of wastes, location standards, and construction quality assurance program.	Relevant and appropriate to placement of federal hazardous waste (if any) in these on-plant consolidation areas.	Will be attained. On-plant consolidation areas will be operated in accordance with Section 6.2 and Appendix C of Work Plan and with the Health, Safety, and Contingency Plan that will be prepared by contractor selected to perform the project.
RCRA Regulations for Hazardous Waste Management/Disposal Facilities (Landfill Closure and Post-Closure Care)	40 CFR 264.111 40 CFR 264.117 40 CFR 264.310	Standards for closure and final cover of hazardous waste landfills. Also, requirements for post-closure monitoring and maintenance.	Relevant and appropriate to closure and post-closure care of these on-plant consolidation areas.	Final covers will meet standards in 264.301(a) for cover design/construction. Post-closure monitoring and maintenance will be conducted in accordance with Sections 8 and 9 of Work Plan. These post-closure activities may not meet all requirements referenced in 264.111 and 264.117. To the extent such requirements will not be met, they should be waived as technically impracticable to achieve.

TABLE 2

**ARARs for Building 71 Consolidation Area
and Potential Consolidation Area at New York Ave./Merrill Road**

Regulation	Citation	Requirements	Applicability/Appropriateness	Proposal Re Attainment
Federal ARARs (cont'd)				
RCRA Regulations for Hazardous Waste Management/Disposal Facilities (Corrective Action Groundwater Monitoring and Protection)	40 CFR 264.100	Regulated units must monitor groundwater and comply with groundwater protection standards; hazardous constituents that exceed maximum concentration levels or alternative concentration levels in groundwater must be removed or treated.	Relevant and appropriate to placement of RCRA hazardous waste (if any) in these on-plant consolidation areas.	Groundwater monitoring will be conducted in accordance with Section 8 of Work Plan, to be further described in Statement of Work for Removal Actions Outside the River (SOW). Criteria for further response actions to meet groundwater protection standards will be as set forth in SOW, which will be generally consistent with 264.100. To the extent these measures do not meet all requirements in that regulation, those requirements should be waived as technically impracticable to achieve.
Clean Water Act NPDES Regulations (Stormwater Discharges)	40 CFR 122.26(c)(ii)(C) 40 CFR 122.44(k) 40 CFR 125.100-.104	Discharges of stormwater associated with construction activities are required to implement best management practices to control pollutants in stormwater discharges during and after construction activities.	Applicable to discharges of stormwater.	Will be attained by implementing erosion controls and stormwater management measures in accordance with Sections 4.7 and 6.13 of Work Plan.

TABLE 2

**ARARs for Building 71 Consolidation Area
and Potential Consolidation Area at New York Ave./Merrill Road**

Regulation	Citation	Requirements	Applicability/Appropriateness	Proposal Re Attainment
State ARARs				
Mass. Hazardous Waste Management Facility Regulations (General)	310 CMR 30.513-30.516	Various requirements relating to waste analysis, security, inspections, and personnel training.	Applicable to placement of Mass. hazardous waste other than ≥ 50 ppm PCB waste in these on-plant consolidation areas.	Will be attained. On-plant consolidation areas will be operated in accordance with Section 6.2 of Work Plan and the Health, Safety, and Contingency Plan that will be prepared by the contractor selected to perform the project.
Mass. Hazardous Waste Management Facility Regulations (Ignition/Reaction)	310 CMR 30.560	Various requirements relating to precautions to prevent accidental ignition or reaction of wastes.	Applicable to placement of Mass. hazardous waste other than ≥ 50 ppm PCB waste in these on-plant consolidation areas.	Will be attained. On-plant consolidation areas will be operated in accordance with the Health, Safety, and Contingency Plan that will be prepared by the contractor selected to perform the project.
Mass. Hazardous Waste Management Facility Regulations (Landfill Closure and Post-Closure Care)	310 CMR 30.582 310 CMR 30.592 310 CMR 30.633	Standards for closure and final cover of hazardous waste landfills. Also, requirements for post-closure monitoring and maintenance.	Applicable to placement of Mass. hazardous waste other than ≥ 50 ppm PCB waste in these on-plant consolidation areas.	Final covers will meet standards in 30.633(1) for cover design/construction. Post-closure monitoring and maintenance will be conducted in accordance with Sections 8 and 9 of Work Plan. These post-closure activities may not meet all post-closure requirements of 30.582 and 30.592. To the extent such requirements will not be met, they should be waived as technically impracticable to achieve.

TABLE 2

**ARARs for Building 71 Consolidation Area
and Potential Consolidation Area at New York Ave./Merrill Road**

Regulation	Citation	Requirements	Applicability/Appropriateness	Proposal Re Attainment
State ARARs (cont'd)				
Mass. Hazardous Waste Management Facility Regulations (Corrective Action Groundwater Monitoring and Protection)	310 CMR 30.672	Regulated units must monitor groundwater and comply with groundwater protection standards; hazardous constituents that exceed maximum concentration levels or alternative concentration levels in groundwater must be removed or treated.	Applicable to placement of Mass. hazardous waste other than ≥ 50 ppm PCB waste in these on-plant consolidation areas.	Groundwater monitoring will be conducted in accordance with Section 8 of Work Plan, to be further described in SOW. Criteria for further response actions to meet groundwater protection standards will be as set forth in SOW, which will be generally consistent with 30.672. To the extent these measures do not meet all requirements in that regulation, those requirements should be waived as technically impracticable to achieve.
Mass. Hazardous Waste Management Facility Regulations (Landfill Design)	310 CMR 30.622	Various design and operating requirements for landfills.	Applicable to placement of Mass. Hazardous Waste of the then ≥ 50 ppm PCB waste in these on-plant consolidation areas.	Construction and operation of consolidation areas will be in accordance with Work Plan. Liner and leachate collection system may not meet all requirements of 30.622. To the extent such requirements will not be met, they should be waived as technically impracticable to achieve.

TABLE 2

**ARARs for Building 71 Consolidation Area
and Potential Consolidation Area at New York Ave./Merrill Road**

Regulation	Citation	Requirements	Applicability/Appropriateness	Proposal Re Attainment
State ARARs (cont'd)				
Mass. Hazardous Waste Management Facility Regulations (Land Disposal Restrictions)	310 CMR 30.757(6) 310 CMR 30.760	Prohibits land disposal of certain hazardous wastes without treatment.	Applicable to placement of certain Mass. hazardous waste other than ≥ 50 ppm PCB waste in these on-plant consolidation areas.	Construction and operation of consolidation areas will be in accordance with Work Plan. These requirements will largely be met because GE will not dispose of any free liquids or free product in the on-plant consolidation areas, and its analyses to date of areas to be excavated have not identified any wastes that are subject to these restrictions. To the extent that the areas to be excavated contain such wastes that the Consent Decree does not otherwise require to be sent off-site for disposal, these requirements should be waived as technically impracticable to achieve.
Mass. Air Pollution Control Requirements	310 CMR 7.09	Prohibition against creating condition of air pollution in connection with dust-generating activities.	Applicable to construction and site alteration activities generating dust.	Will be attained by implementing dust control measures and air monitoring in accordance with Sections 6.7 and 6.10 of Work Plan.

TABLE 3

**GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
DETAILED WORK PLAN FOR ON-PLANT CONSOLIDATION AREAS**

**SUMMARY OF PCBs DETECTED IN SOIL BORING SAMPLES
(Results are presented in dry-weight parts per million, ppm)**

Sample ID	Depth(Feet)	Date Collected	Aroclor-1254	Aroclor-1260	Total PCBs
OPCA-1	0-1	5/26/99	ND(0.043)	ND(0.043)	ND(0.043)
	1-6	5/26/99	ND(0.039)	0.093	0.093
	6-15	5/26/99	ND(0.038)	0.045	0.045
OPCA-2	0-1	5/26/99	0.051	ND(0.046)	0.051
	1-6	5/26/99	ND(0.039)	0.47	0.47
	6-15	5/26/99	ND(0.039)	ND(0.039)	ND(0.039)
OPCA-3	0-1	5/25/99	ND(0.036)	0.58	0.58
	1-6	5/25/99	100	ND(18)	100
	6-15	5/25/99	84	ND(18)	84
OPCA-4	0-1	5/26/99	ND(0.038)	0.073	0.073
	1-6	5/26/99	ND(35)	65	65
	6-15	5/26/99	ND(0.038)	0.16	0.16
OPCA-5	0-1	5/25/99	ND(0.75)	22	22
	1-6	5/25/99	0.044	ND(0.037)	0.044
	6-15	5/25/99	0.022 J	ND(0.038)	0.022
OPCA-6	0-1	5/26/99	ND(0.038)	0.077	0.077
	1-6	5/26/99	0.024 J	ND(0.036)	0.024
	6-15	5/26/99	ND(0.036)	ND(0.036)	ND(0.036)
OPCA-7	0-1	5/25/99	ND(0.037)	0.78	0.78
	1-6	5/25/99	ND(0.037) [ND(0.037)]	0.18 [0.18]	0.18 [0.18]
	6-15	5/25/99	ND(0.038)	ND(0.038)	ND(0.038)
OPCA-8	0-1	5/26/99	ND(0.038) [ND(0.037)]	0.22 [0.22]	0.22 [0.22]
	1-6	5/26/99	ND(0.035)	ND(0.035)	ND(0.035)
	6-15	5/26/99	ND(0.036)	ND(0.036)	ND(0.036)
OPCA-9	0-1	5/28/99	ND(0.043)	0.038 J	0.038
	1-6	5/28/99	ND(0.19)	3.7	3.7
	6-15	5/28/99	ND(0.040) [ND(0.040)]	0.34 [0.19]	0.34 [0.19]
H78B-28/28R	1-6	5/27/99	40	ND(2.1)	40

Notes:

- 1) Samples were collected by Blasland, Bouck & Lee, Inc., and were submitted to CT&E Environmental Services, Inc. for analysis of PCBs.
- 2) ND - Analyte was not detected. The value in parentheses is the associated detection limit.
- 3) J - Indicates an estimated value less than the CLP-required quantitation limit.
- 4) Duplicate results are presented in brackets, [].
- 5) Only constituents detected in one or more samples are shown.

TABLE 4

**GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
DETAILED WORK PLAN FOR ON-PLANT CONSOLIDATION AREAS**

**SUMMARY OF APPENDIX IX+3 CONSTITUENTS DETECTED IN SOIL BORING SAMPLES
(Results are presented in dry-weight parts per million, ppm)**

Sample ID Sample Depth(Feet) Date Collected	OPCA-1 0-1 5/26/99	OPCA-2 0-1 5/26/99	OPCA-4 0-1 5/26/99
Volatile Organics			
None Detected	--	--	--
Semivolatile Organics			
Aniline	ND(0.42)	ND(0.51)	ND(0.49)
Furans			
2,3,7,8-TCDF	0.0000037	0.0000040	0.0000061
TCDFs (total)	0.000023	0.000050	0.000095
1,2,3,7,8-PeCDF	ND(0.0000010)	0.0000013	ND(0.0000014)
2,3,4,7,8-PeCDF	0.0000016	0.0000017	0.0000025
PeCDFs (total)	0.000021	0.000052	0.000069
1,2,3,4,7,8-HxCDF	0.0000042	0.0000044	0.0000028 J
1,2,3,6,7,8-HxCDF	0.0000021 J	0.0000033	0.0000045
1,2,3,7,8,9-HxCDF	ND(0.00000015)	0.00000019 J	0.00000021 J
2,3,4,6,7,8-HxCDF	0.0000016 J	0.0000018 J	0.0000022 J
HxCDFs (total)	0.000020	0.000029	0.000043
1,2,3,4,6,7,8-HpCDF	0.0000072	0.0000076	0.000011
1,2,3,4,7,8,9-HpCDF	0.0000011 J	0.0000014 J	0.0000017 J
HpCDFs (total)	0.000013	0.000014	0.000022
OCDF	0.0000033 J	0.0000042 J	0.000011
Total Furans	0.000080	0.00015	0.00024
Dioxins			
2,3,7,8-TCDD	0.00000017 J	ND(0.00000021)	ND(0.00000023)
TCDDs (total)	0.0000013	0.0000015	0.0000018
1,2,3,7,8-PeCDD	0.00000054 J	ND(0.00000057)	ND(0.00000073)
PeCDDs (total)	0.0000014	ND(0.00000057)	ND(0.00000073)
1,2,3,4,7,8-HxCDD	ND(0.00000043)	0.00000076 J	0.00000066 J
1,2,3,6,7,8-HxCDD	0.00000057 J	ND(0.00000052)	0.00000097 J
1,2,3,7,8,9-HxCDD	0.00000093 J	0.00000086 J	0.0000012 J
HxCDDs (total)	0.0000043	0.0000046	0.0000076
1,2,3,4,6,7,8-HpCDD	0.0000029 J	0.0000042	0.0000075
HpCDDs (total)	0.0000059	0.0000074	0.000014
OCDD	0.000011	0.000018	0.000059
Total Dioxins	0.000024	0.000032	0.000082
MDEP TEF	0.0000047	0.0000075	0.0000098
EPA TEF	0.0000023	0.0000025	0.0000032
Inorganics			
Arsenic	4.70	5.80	4.30
Barium	58.3	64.7	30.7
Beryllium	0.390	ND(0.210)	0.270
Cadmium	0.660	0.670	0.390
Chromium	14.5	16.0	6.40
Cobalt	10.3	12.1	7.10
Copper	21.9	22.1	14.0
Lead	11.4	10.2	12.1
Nickel	19.9	21.7	11.7
Sulfide	ND(6.50)	ND(7.00)	9.40
Vanadium	17.0	18.3	7.70
Zinc	59.0	59.5	44.2

TABLE 4

**GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
DETAILED WORK PLAN FOR ON-PLANT CONSOLIDATION AREAS**

**SUMMARY OF APPENDIX IX+3 CONSTITUENTS DETECTED IN SOIL BORING SAMPLES
(Results are presented in dry-weight parts per million, ppm)**

Sample ID Sample Depth(Feet) Date Collected	OPCA-6 0-1 5/26/99	OPCA-8 0-1 5/26/99
Volatile Organics		
None Detected	--	--
Semivolatile Organics		
Aniline	0.82	ND(0.41) [ND(0.40)]
Furans		
2,3,7,8-TCDF	0.000010	0.0000087 [ND(0.0000031)]
TCDFs (total)	0.00014	0.00076 [0.00025]
1,2,3,7,8-PeCDF	0.0000021	0.0000015 [ND(0.0000018)]
2,3,4,7,8-PeCDF	0.0000030	0.0000037 [ND(0.0000060)]
PeCDFs (total)	0.00015	0.0012 [0.00065]
1,2,3,4,7,8-HxCDF	0.0000063	0.0000097 [0.0000086]
1,2,3,6,7,8-HxCDF	0.000011	0.000064 [0.000055]
1,2,3,7,8,9-HxCDF	ND(0.0000025)	0.0000025 J [ND(0.0000073)]
2,3,4,6,7,8-HxCDF	0.0000025 J	0.000012 [0.000013]
HxCDFs (total)	0.000094	0.00082 [0.00060]
1,2,3,4,6,7,8-HpCDF	0.000011	0.000063 [0.000039]
1,2,3,4,7,8,9-HpCDF	0.0000018 J	0.0000030 [ND(0.0000021)]
HpCDFs (total)	0.000019	0.00014 [0.000039]
OCDF	0.0000055 J	0.000014 [0.000015]
Total Furans	0.00041	0.0029 [0.0016]
Dioxins		
2,3,7,8-TCDD	ND(0.00000041)	ND(0.00000046) [0.0000020]
TCDDs (total)	0.0000014	0.0000017 [0.0000020]
1,2,3,7,8-PeCDD	0.00000079 J	0.0000011 J [ND(0.0000012)]
PeCDDs (total)	0.00000079	0.0000042 [ND(0.0000012)]
1,2,3,4,7,8-HxCDD	ND(0.00000089)	0.0000013 J [ND(0.0000019)]
1,2,3,6,7,8-HxCDD	0.0000012 J	0.0000019 J [ND(0.0000023)]
1,2,3,7,8,9-HxCDD	ND(0.0000014)	0.0000020 J [ND(0.0000027)]
HxCDDs (total)	0.0000068	0.000015 [ND(0.0000019)]
1,2,3,4,6,7,8-HpCDD	0.0000078	0.000015 [0.000011]
HpCDDs (total)	0.000015	0.000031 [0.000011]
OCDD	0.000039	0.00011 [0.000077]
Total Dioxins	0.000063	0.00016 [0.000090]
MDEP TEF	0.000017	0.000096 [0.000055]
EPA TEF	0.0000050	0.000013 [0.000010]
Inorganics		
Arsenic	5.50	5.60 [5.70]
Barium	28.9	24.0 [33.9]
Beryllium	0.360	0.220 [0.240]
Cadmium	0.370	0.480 [0.450]
Chromium	9.40	6.60 [6.50]
Cobalt	10.1	8.30 [8.00]
Copper	16.4	13.5 [14.5]
Lead	15.4	20.1 [20.6]
Nickel	17.2	10.8 [12.4]
Sulfide	9.40	9.10 [7.20]
Vanadium	10.8	10.0 [10.8]
Zinc	59.2	42.9 [41.2]

TABLE 4

**GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
DETAILED WORK PLAN FOR ON-PLANT CONSOLIDATION AREAS**

**SUMMARY OF APPENDIX IX+3 CONSTITUENTS DETECTED IN SOIL BORING SAMPLES
(Results are presented in dry-weight parts per million, ppm)**

Notes:

- 1) Samples were collected by Blasland, Bouck & Lee, Inc., and were submitted to CT&E Environmental Services, Inc. for analysis of Appendix IX+3 constituents (excluding herbicides and pesticides).
- 2) ND - Analyte was not detected. The number in parentheses is the associated quantitation limit for volatiles and semivolatiles, and the associated detection limit for other constituents.
- 3) J - Indicates an estimated value less than the CLP-required quantitation limit.
- 4) Total dioxins/furans determined as the sum of the total homolog concentrations; non-detect values considered as zero.
- 5) Total 2,3,7,8-TCDD toxicity equivalents (TEQs) were calculated using both MDEP's and EPA's Toxicity Equivalency Factors (TEFs) for all PCDD/PCDF congeners, although GE does not accept the validity of these TEFs.
- 6) Duplicate results are presented in brackets, [].
- 7) Only constituents detected in one or more samples are shown.

TABLE 5

**GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
DETAILED WORK PLAN FOR ON-PLANT CONSOLIDATION AREAS
PROPOSED GROUNDWATER MONITORING PROGRAM**

SUMMARY OF MONITORING WELL SPECIFICATIONS

WELL ID	WELL DIAMETER (Inches)	GROUND ELEVATION (Feet AMSL)	MEASURING POINT ELEVATION (Feet AMSL)	DEPTH TO TOP OF SCREEN (Feet BGS)	SCREEN LENGTH (Feet)	TOP OF SCREEN ELEVATION (Feet AMSL)	BASE OF SCREEN ELEVATION (Feet AMSL)	APPROX. DEPTH TO WATER (Feet BMP)	APPROX. GROUND- WATER ELEVATION (Feet AMSL)
78-1	4	1027.4	1026.34	8	15	1019.4	1004.4	10	1016
78-6	4	1013.1	1011.99	3	15	1010.1	995.1	6	1006
H78B-15	0.75	1009.8	1012.73	6	10	1003.8	993.8	11	1002
NY-4	4	1024.8	1024.53	17	15	1007.8	992.8	9	1016
OPCA-MW-1	2	NA	NA	20.1	10	NA	NA	NA	NA
OPCA-MW-2	2	NA	NA	13	10	NA	NA	NA	NA
OPCA-MW-3	2	NA	NA	18	10	NA	NA	NA	NA
OPCA-MW-4	2	NA	NA	12	10	NA	NA	NA	NA
OPCA-MW-5	2	NA	NA	9.8	10	NA	NA	NA	NA
OPCA-MW-6	2	NA	NA	15	10	NA	NA	NA	NA
OPCA-MW-7	2	NA	NA	14	10	NA	NA	NA	NA
OPCA-MW-8	2	NA	NA	13.5	10	NA	NA	NA	NA

NOTES:

1. Newly-installed wells OPCA-MW-1 through OPCA-MW-8 have yet to be surveyed, therefore elevation data is not available for these wells.
2. NA: Not Available.
3. Feet AMSL: Feet above Mean Sea Level.
4. Feet BGS: Feet Below Ground Surface.
5. Feet BMP: Feet Below Measuring Point.